



UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY  
REGION II

IN THE MATTER OF:

Fair Lawn Well Field Site  
Fair Lawn, Bergen County, New Jersey

Eastman Kodak Company,  
Fisher Scientific Company, LLC and  
Sandvik, Inc.

Respondents

ADMINISTRATIVE SETTLEMENT  
AGREEMENT AND ORDER ON  
CONSENT FOR REMEDIAL  
INVESTIGATION/FEASIBILITY STUDY

U.S. EPA Region II  
CERCLA Docket No. 02-2008-2003

Proceeding Under Sections 104, 107 and  
122 of the Comprehensive Environmental  
Response, Compensation, and Liability Act,  
as amended, 42 U.S.C. §§ 9604, 9607 and  
9622.

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**ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT  
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY**

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## **I. JURISDICTION AND GENERAL PROVISIONS**

1. This Administrative Settlement Agreement and Order on Consent ("Settlement Agreement") is entered into voluntarily by the United States Environmental Protection Agency ("EPA") and Eastman Kodak Company, Fisher Scientific Company, LLC and Sandvik, Inc. ("Respondents"). The Settlement Agreement concerns the preparation and performance of a remedial investigation and feasibility study ("RI/FS") at the Fair Lawn Well Field Superfund Site located within the Borough of Fair Lawn, Bergen County, New Jersey ("Site") and the reimbursement for Future Response Costs including Interim Response Costs incurred by EPA in connection with the RI/FS as well as Past Response Costs.

2. This Settlement Agreement is issued under the authority vested in the President of the United States by Sections 104, 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9604, 9607 and 9622 ("CERCLA"). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580, 52 Fed. Reg. 2926 (Jan. 29, 1987), and further delegated to Regional Administrators on May 11, 1994, by EPA Delegation Nos. 14-14-C and 14-14-D. This authority was redelegated by the Regional Administrator of EPA Region II to the Director of the Emergency and Remedial Response Division by EPA Delegations 14-14-C and 14-14-D dated November 23, 2004.

3. In accordance with Section 104(b)(2) of CERCLA, EPA notified Federal and State natural resource trustees on December 18, 1997, regarding the release of hazardous substances that may have resulted in injury to the natural resources under Federal and/or State trusteeship.

4. EPA and Respondents recognize that this Settlement Agreement has been negotiated in good faith and that the actions undertaken by Respondents in accordance with this Settlement Agreement do not constitute an admission of any liability. Respondents do not admit, and retain the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement Agreement, the validity of the findings of fact, conclusions of law and determinations in Sections V and VI of this Settlement Agreement. Respondents agree to comply with and be bound by the terms of this Settlement Agreement and further agree that they will not contest EPA's jurisdiction regarding the basis or validity of this Settlement Agreement or its terms.

## **II. PARTIES BOUND**

5. This Settlement Agreement applies to and is binding upon EPA and upon Respondents and their successors and assigns. Any change in ownership or corporate status of a Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter such Respondent's responsibilities under this Settlement Agreement.

6. Respondents are jointly and severally liable for carrying out all activities required by this Settlement Agreement. In the event of the insolvency or other failure of any one or more Respondents to implement the requirements of this Settlement Agreement, the remaining Respondents shall remain responsible and shall complete all such requirements.

7. Respondents shall provide a copy of this Settlement Agreement to all contractors, subcontractors, and representatives retained by Respondents to conduct any portion of the Work to be performed by Respondents pursuant to this Settlement Agreement. Respondents shall require in any and all contracts for performance of the Work that such Work be performed pursuant to the terms of and conditions of this Settlement Agreement.

8. Each undersigned representative of Respondents certifies that he or she is fully authorized to enter into the terms and conditions of this Settlement Agreement and to execute and legally bind Respondents to this Settlement Agreement.

### **III. STATEMENT OF PURPOSE**

9. In entering into this Settlement Agreement, the objectives of EPA and Respondents are: (a) to determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by the release or threatened release of hazardous substances, pollutants or contaminants at or from the Site, by conducting a Remedial Investigation as more specifically set forth in the Statement of Work ("SOW") attached as Appendix A to this Settlement Agreement; (b) to identify and evaluate remedial alternatives to prevent, mitigate or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site, by conducting a Feasibility Study as more specifically set forth in the SOW in Appendix A to this Settlement Agreement; and (c) to reimburse EPA for costs incurred and to be incurred by EPA with respect to this Settlement Agreement, including Interim Response Costs and Future Response Costs; and (d) to reimburse EPA for Past Response Costs incurred by EPA relating to the Site.

10. The Work conducted under this Settlement Agreement is subject to approval by EPA and shall provide all appropriate and necessary information to assess Site conditions and evaluate alternatives to the extent necessary to select a remedy that will be consistent with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300 ("NCP"). Respondents shall conduct Work under this Settlement Agreement in compliance with CERCLA, the NCP, and all applicable EPA guidances, policies, and procedures. The activities conducted pursuant to this Settlement Agreement, if approved by EPA, shall be deemed to be consistent with the NCP.

#### IV. DEFINITIONS

11. Unless otherwise expressly provided herein, terms used in this Settlement Agreement that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Settlement Agreement or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

a. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, *et seq.*

b. "Day" shall mean a calendar day. In computing any period of time under this Settlement Agreement, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business of the next working day.

c. "Effective Date" shall be the effective date of this Settlement Agreement as provided in Section XXXI.

d. "Engineering Controls" shall mean constructed containment barriers or systems that control one or more of the following: downward migration, infiltration or seepage of surface runoff or rain, natural leaching or migration of contaminants through the subsurface over time, or the treatment of contaminated groundwater. Examples include caps, engineered bottom barriers, immobilization processes, vertical barriers, groundwater pump and treat systems, groundwater strippers and excavation of contaminated soils.

e. "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

f. "Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs after the Effective Date in reviewing or developing plans, reports and other items pursuant to this Settlement Agreement, verifying the Work, or otherwise implementing, overseeing, or enforcing this Settlement Agreement, including but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, Agency for Toxic Substances and Disease Registry ("ATSDR") costs, the costs incurred pursuant to Paragraph 54 (costs and attorneys fees and any monies paid to secure access, including the amount of just compensation), Paragraph 40 (emergency response) and Paragraph 84 (Work Takeover). Future Response Costs shall also include all Interim Response Costs.

g. "Institutional Controls" shall mean non-engineered instruments, such as administrative and/or legal controls, that help to minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land and/or resource use. Examples of Institutional Controls include, but are not limited to, easements and covenants,

zoning restrictions, special building permit requirements, and well drilling prohibitions.

h. "Interest" shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

i. "Interim Response Costs" shall mean all costs, including direct and indirect costs, (a) paid by the United States in connection with the Site between December 31, 2005 through the Effective Date, or (b) incurred prior to the Effective Date, but paid after that date.

j. "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

k. "NJDEP" shall mean the New Jersey Department of Environmental Protection and any successor departments or agencies of the State.

l. "Paragraph" shall mean a portion of this Settlement Agreement identified by an Arabic numeral.

m. "Parties" shall mean EPA and Respondents.

n. "Past Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States paid at or in connection with the Site through December 31, 2005, plus Interest on all such costs which has accrued pursuant to 42 U.S.C. § 9607(a) through such date.

o. "RPM" shall mean the EPA's Remedial Project Manager for this Site.

p. "RCRA" shall mean the Resource Conservation and Recovery Act, also known as the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901, *et seq.*

q. "Respondents" shall mean Eastman Kodak Company, Fisher Scientific Company, LLC, Sandvik, Inc. and their successors and assigns.

r. "Section" shall mean a portion of this Settlement Agreement identified by a Roman numeral.

s. "Settlement Agreement" shall mean this Administrative Settlement Agreement and Order on Consent, the SOW, all appendices attached hereto (listed in Section XXVII) and all

documents incorporated by reference into this document including without limitation EPA-approved submissions. EPA-approved submissions (other than progress reports) are incorporated into and become a part of the Settlement Agreement upon approval by EPA. In the event of conflict between this Settlement Agreement and any appendix or other incorporated documents, this Settlement Agreement shall control.

t. "Site" shall mean the Fair Lawn Well Field Superfund Site, comprising the Westmoreland Well Field located within the Borough of Fair Lawn, Bergen County, New Jersey, and the areal extent of contamination.

u. "State" shall mean the State of New Jersey.

v. "Statement of Work" or "SOW" shall mean the Statement of Work for development of a RI/FS for the Site, as set forth in Appendix A to this Settlement Agreement. The Statement of Work is incorporated into this Settlement Agreement and is an enforceable part of this Settlement Agreement as are any modifications made thereto in accordance with this Settlement Agreement.

w. "Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and (4) any mixture containing any of the constituents noted in (1), (2) or (3), above.

x. "Work" shall mean all activities Respondents are required to perform under this Settlement Agreement, except those required by Section XIV (Retention of Records).

## **V. EPA'S FINDINGS OF FACT**

12. The Fair Lawn Well Field Site comprises the Westmoreland Well Field located within the Borough of Fair Lawn, Bergen County, New Jersey, and the areal extent of contamination. These wells are a source of drinking water to the residents of Fair Lawn. The Site is bounded by the Fair Lawn Industrial Park to the northeast and the Passaic River to the southwest. Several residences are within 300 feet of the Site.

13. In or about 1978, the Borough of Fair Lawn discovered that two non-potable industrial wells located in the Fair Lawn Industrial Park were contaminated by several volatile organic compounds ("VOCs"). Subsequent sampling by the Borough found that several municipal potable production wells in the Westmoreland Well Field were also contaminated by VOCs. The most commonly occurring VOCs in these wells include, but are not limited to, trichloroethylene ("TCE"), tetrachloroethylene ("PCE"), 1,1,1-trichloroethane ("1,1,1-TCA"), 1,1-dichloroethylene ("1,1-DCE"), 1,2-dichloroethene ("1,2-DCE"), carbon tetrachloride,

methylene chloride and chloroform.

14. In an attempt to identify the sources of the groundwater contamination, NJDEP initiated an industrial survey of the area. This survey identified Fisher Scientific Company LLC ("Fisher") and Sandvik, Inc. ("Sandvik"), whose handling, storage, and/or disposal of VOCs may have contributed to the Fair Lawn groundwater contamination problem. NJDEP began site-specific soil and groundwater investigations at the Fisher facility located at 1 Reagent Lane, as known as 1902 Nevins Road, and at the Sandvik facility located at 1702 Nevins Road. Based upon the results of these investigations, NJDEP concluded that Fisher and Sandvik were sources of the VOC contamination in the Westmoreland wells.

15. The Fisher facility has operated from approximately 1955 to the present. Fisher has owned the facility since 1986. Operations consist of formulating, distilling, repackaging, and distributing various laboratory reagents and solvents. VOCs have been utilized at the facility. Soil and groundwater sampling conducted at the Fisher facility revealed the presence of several hazardous substances including, 1,1,1-TCA, PCE, TCE, carbon tetrachloride, and chloroform.

16. Sandvik has owned its facility from 1955 to the present. Operations from 1955 through 1970 consisted of steel processing; from the start of 1970 through May 2006 facility operations consisted of manufacturing cemented carbide cutting tools. Various VOCs, including but not limited to, TCE and 1,1,1-TCA have been utilized at the facility. Soil and groundwater sampling conducted at the Sandvik facility revealed the presence of several hazardous substances including, 1,1,1-TCA, TCE and PCE.

17. The Site was listed on the National Priorities List ("NPL") pursuant to CERCLA Section 105, 42 U.S.C. § 9605, on September 8, 1983. EPA sent general notice letters dated February 9, 1984, to Fisher and Sandvik advising them of their potential liability for the Site pursuant to Section 107 of CERCLA, 42 U.S.C. § 9607.

18. In March 1984, NJDEP entered into Administrative Orders on Consent ("AOCs") with Fisher and Sandvik. Both companies agreed to conduct soil and groundwater investigations at their facilities; implement remedial measures deemed necessary by NJDEP; and pay the Borough of Fair Lawn for the installation and operation of air stripper units to treat contaminated groundwater. In 1986, the Borough of Fair Lawn installed an air stripper system to treat some of the wells located at the Westmoreland Well Field; and has continued to operate and maintain the system. Under NJDEP oversight, pursuant to the New Jersey Environmental Cleanup Responsibility Act (now known as the Industrial Sites Recovery Act, N.J.S.A. 13:1K, *et seq.* ("ISRA")) Fisher installed trenches, shallow, intermediate and deep monitoring wells, shallow and deep extraction wells, liquid phase carbon treatment and an air stripper to collect and treat contaminated groundwater at its facility. Pursuant to a Consent Order entered into with NJDEP, Sandvik removed and disposed of contaminated soil and buried drums, and installed groundwater monitoring wells at their facility. Sandvik recently entered the ISRA program by virtue of

having shut down manufacturing operations at its facility in the Fair Lawn Industrial Park.

19. In September 1992, EPA became the lead agency for the Site.

a. EPA conducted a potentially responsible party search to determine if any other sources of contamination to the Westmoreland Well Field existed.

b. In May and June 1995, EPA in conjunction with the Fair Lawn Health and Water Department, sampled and analyzed twenty-eight (28) residential and commercial wells to determine water quality. The sampling results indicated that VOCs were detected in thirteen (13) wells, of which five (5) did not meet the Federal Safe Drinking Water Act Maximum Contaminant Levels for PCE.

c. In April 1999, EPA entered into an Interagency Agreement with the U.S. Geological Survey ("USGS") to develop a groundwater flow study for the Site to determine: flow patterns; contributing sources of contamination; contaminant plume boundaries; and the effect of the pump and treat systems at the Westmoreland Well Field and the Fisher facility on flowpaths. The USGS study utilized a digital regional groundwater flow model and states that: (1) in addition to the Fisher and Sandvik facilities, the Eastman Kodak Company ("Kodak") facility is a contributing source of the contamination at the Westmoreland Well Field; (2) the Westmoreland Well Field currently comprised of wells FL-10, FL-11 (taken out of service in 1997), and FL-14 is hydraulically connected to the bedrock and unconsolidated overburden underlying the Kodak, Fisher and Sandvik facilities; (3) the VOCs including, but not necessarily limited to PCE, 1,1,1-TCA, TCE, cis1-2, DCE, 1,1-DCA and 1,1-DCE found at the Westmoreland Well Field were of the type and nature found variously in the soils and groundwater at the Kodak, Fisher and Sandvik facilities; (4) the 1991 simulated groundwater flow revealed that the plume from Fisher reached Westmoreland wells FL-11 and FL-14, and is within 125 feet of well FL-10; the plume from Sandvik reached Westmoreland wells FL-10, FL-11 and FL-14, and the plume from Kodak reached Westmoreland well FL-14; (5) the 2000 simulated groundwater flow revealed that the plume from Fisher reached Westmoreland well FL-14 and is within 300 feet of well FL-10; the plume from Sandvik reached Westmoreland wells FL-10 and FL-14; and the plume from Kodak reached Westmoreland well FL-14; and (6) not all of the groundwater flow from the three industrial facilities is captured by the Westmoreland Well Field or the groundwater pump and treat system located at the Fisher facility, but rather discharges to the Henderson Brook and/or the Passaic River.

20. Kodak has owned and operated a film processing laboratory at its facility located at 16-31 Route 208 in Fair Lawn from 1961 to September 2004. The facility was demolished in January 2006. VOCs including, but not limited to, 1,1,1-TCA and methylene chloride have been utilized at the facility. Soil and groundwater sampling at the facility revealed the presence of several hazardous substances including, 1,1,1-TCA and TCE. In November 1992, Kodak entered into a Memorandum of Agreement with NJDEP to investigate identified areas of concern.

## **VI. EPA'S CONCLUSIONS OF LAW AND DETERMINATIONS**

Based on EPA's Findings of Fact set forth above, EPA has determined that:

21. The Fair Lawn Well Field Site is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

22. The contamination found at the Site, as identified in Section V (Findings of Fact), includes "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and as designated at 40 C.F.R. Part 302.

23. The presence of hazardous substances at the Site or the past, present or potential migration of hazardous substances currently located at or emanating from the Site, constitutes actual and/or threatened "release" of a hazardous substance from the facility as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

24. Each Respondent is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

25. Respondents are responsible parties under Sections 104, 107, 113(f) and 122 of CERCLA, 42 U.S.C. §§ 9604, 9607, 9613 and 9622. Each Respondent is a person who either generated the hazardous substances found at the Site, is a person who at the time of disposal of any hazardous substances owned or operated the Site, or is a person who arranged for disposal of hazardous substances at a facility at the Site. Each Respondent, therefore, may be liable under one or more subsections of Section 107 of CERCLA, 42 U.S.C. § 9607(a).

26. The actions required by this Settlement Agreement are necessary to protect the public health, welfare or the environment, are in the public interest, 42 U.S.C. § 9622(a), are consistent with CERCLA and the NCP, 42 U.S.C. §§ 9604(a)(1), 9622(a), and will expedite effective remedial action and minimize litigation, 42 U.S.C. § 9622(a).

27. EPA has determined that Respondents are qualified to conduct the RI/FS within the meaning of Section 104(a) of CERCLA, 42 U.S.C. § 9604(a), and will carry out the Work properly and promptly, in accordance with Sections 104(a) and 122(a) of CERCLA, 42 U.S.C. §§ 9604(a) and 9622(a), if Respondents comply with the terms of this Settlement Agreement.

## **VII. SETTLEMENT AGREEMENT AND ORDER**

28. Based upon EPA's foregoing Findings of Fact and EPA's Conclusions of Law and Determinations set forth above, it is hereby Ordered and Agreed that Respondents shall comply with all provisions of this Settlement Agreement, including, but not limited to, all appendices to this Settlement Agreement and all documents incorporated by reference into this Settlement

Agreement.

## **VIII. DESIGNATION OF CONTRACTORS AND PROJECT COORDINATORS**

29. Selection of Contractors, Personnel. All Work performed under this Settlement Agreement shall be under the direction and supervision of qualified personnel. Within 10 days of the Effective Date of this Settlement Agreement, and before the Work outlined below begins, Respondents shall notify EPA in writing of the names, titles, and qualifications of the personnel, including contractors (and if known, the contractor's subcontractors, consultants and laboratories) to be used in carrying out such Work. With respect to any proposed contractor, Respondents shall demonstrate that the proposed contractor has a quality system which complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995, or most recent version), by submitting a copy of the proposed contractor's Quality Management Plan ("QMP"). The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)," (EPA/240/B-01/002, March 2001 or subsequently issued guidance) or equivalent documentation as determined by EPA. The qualifications of the persons undertaking the Work for Respondents shall be subject to EPA's review, for verification that such persons meet minimum technical background and experience requirements. If EPA disapproves in writing of any person's technical qualifications, Respondents shall notify EPA of the identity and qualifications of the replacements within 30 days of the written notice. If EPA subsequently disapproves of the replacement, EPA reserves the right to terminate this Settlement Agreement and to conduct a complete RI/FS, and to seek reimbursement for costs and penalties from Respondents. During the course of the RI/FS, Respondents shall notify EPA in writing of any changes or additions in the personnel used to carry out such Work, providing their names, titles, and qualifications. EPA shall have the same right to disapprove changes and additions to personnel as it has hereunder regarding the initial notification.

30. Within 14 days after the Effective Date, Respondents shall designate a Project Coordinator who shall be responsible for administration of all actions by Respondents required by this Settlement Agreement and shall submit to EPA the designated Project Coordinator's name, address, telephone number, and qualifications. To the greatest extent possible, the Project Coordinator shall be present on Site or readily available during Site Work. EPA retains the right to disapprove of the designated Project Coordinator. If EPA disapproves of the designated Project Coordinator, Respondents shall retain a different Project Coordinator and shall notify EPA of that person's name, address, telephone number and qualifications within 30 days following EPA's disapproval. Respondents shall have the right to change their Project Coordinator, subject to EPA's right to disapprove. To the extent reasonably possible, Respondents shall notify EPA 30 days before such a change is made. The initial notification may be made orally, but shall be promptly followed by a written notification. Receipt by Respondents' Project Coordinator of any notice or communication from EPA relating to this

Settlement Agreement shall constitute receipt by Respondents.

31. EPA has designated Michael Zeolla of the Emergency and Remedial Response Division, New Jersey Remediation Branch as its "Remedial Project Manager" ("RPM") for this Site. EPA will notify Respondents of a change of its designated RPM. Except as otherwise provided in this Settlement Agreement, Respondents shall direct all submissions required by this Settlement Agreement by certified mail, return receipt requested, or by UPS or Federal Express, to the RPM at:

ATTN: Fair Lawn Well Field Remedial Project Manager  
New Jersey Remediation Branch  
Emergency and Remedial Response Division  
U.S. Environmental Protection Agency,  
Region II  
290 Broadway - 19<sup>th</sup> Floor  
New York, New York 10007

32. EPA's RPM shall have the authority lawfully vested in a RPM and On-Scene Coordinator ("OSC") by the NCP. In addition, EPA's RPM shall have the authority consistent with the NCP, to halt any Work required by this Settlement Agreement, and to take any necessary response action when he determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment. The absence of the EPA RPM from the area under study pursuant to this Settlement Agreement shall not be cause for the stoppage or delay of Work.

33. EPA shall arrange for a qualified person to assist in its oversight and review of the conduct of the RI/FS, as required by Section 104(a) of CERCLA, 42 U.S.C. Section 9604(a). Such person shall have the authority to observe Work and make inquiries in the absence of EPA, but not to modify the RI/FS Work Plan or any EPA approved submissions.

#### **IX. WORK TO BE PERFORMED**

34. Respondents shall conduct the RI/FS in accordance with the provisions of this Settlement Agreement, the SOW, CERCLA, the NCP and applicable EPA guidance, including, but not limited to the "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (OSWER Directive # 9355.3-01, October 1988 or subsequently issued guidance), "Guidance for Data Useability in Risk Assessment" (OSWER Directive #9285.7-05, October 1990 or subsequently issued guidance), and guidance referenced therein, and guidances referenced in the SOW, as may be amended or modified by EPA. The Remedial Investigation ("RI") shall consist of collecting data to characterize site conditions, determining the nature and extent of the contamination at or from the Site, assessing risk to human health and the environment and conducting treatability testing as necessary to evaluate the

potential performance and cost of the treatment technologies that are being considered. The Feasibility Study ("FS") shall determine and evaluate (based on treatability testing, if and where appropriate) alternatives for remedial action to prevent, mitigate or otherwise respond to or remedy the release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site. The alternatives evaluated must include, but shall not be limited to, the range of alternatives described in the NCP, and shall include remedial actions that utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In evaluating the alternatives, Respondents shall address the factors required to be taken into account by Section 121 of CERCLA, 42 U.S.C. § 9621, and Section 300.430(e) of the NCP, 40 C.F.R. § 300.430(e). Upon request by EPA, Respondents shall submit in electronic form, to the extent available for historical data, all portions of any plan, report or other deliverable Respondents are required to submit pursuant to provisions of this Settlement Agreement.

a. EPA will determine the Site-specific objectives of the RI/FS, as set forth in the SOW, and devise a general management approach for the Site. Respondents shall compile and review all existing data for the Site and shall conduct the activities as described in the attached SOW and in accordance with applicable EPA guidance. At the conclusion of the project planning phase, Respondents shall provide EPA with the following plans, reports and other deliverables for EPA's approval pursuant to Section X (EPA Approval of Plans and Other Submissions):

(1) Task I- RI/FS Work Plan. Within 90 days after the Effective Date of this Settlement Agreement, Respondents shall submit to EPA for approval a detailed RI/FS Work Plan for the completion of the RI/FS. The RI/FS Work Plan shall be prepared in accordance with this Settlement Agreement, the SOW and applicable EPA guidance and shall include a Sampling and Analysis Plan, a Quality Assurance/Quality Control Project Plan, and a Health and Safety Plan. Upon approval or modification by EPA pursuant to Section X (EPA Approval of Plans and Other Submissions), the RI/FS Work Plan shall be incorporated into and become enforceable under this Settlement Agreement.

(2) Task II- Community Relations Plan. EPA will prepare a community relations plan, in accordance with EPA guidance and the NCP. As requested by EPA, Respondents shall provide information supporting EPA's community relations plan and shall participate in the preparation of such information for dissemination to the public and in public meetings which may be held or sponsored by EPA to explain activities at or concerning the Site. EPA shall provide reasonable prior notice to the Project Coordinator of any scheduled public meeting held or sponsored by EPA to explain activities at or concerning the Site.

(3) Task III - Site Characterization. Following EPA approval or modification of the RI/FS Work Plan, Respondents shall implement the provisions of the RI/FS Work Plan to characterize the Site. Respondents shall complete Site characterization and submit

all plans, reports and other deliverables in accordance with the schedules and deadlines established in this Settlement Agreement, the SOW, the EPA-approved RI/FS Work Plan, and EPA guidance. Respondents shall submit all plans, reports and other deliverables to EPA for approval pursuant to Section X (EPA Approval of Plans and Other Submissions).

(4) Task IV - Identification of Candidate Technologies Memorandum.

Respondents shall submit an Identification of Candidate Technologies Memorandum to EPA within 30 days of Respondents' submission of the last set of validated analytical results to EPA. Where appropriate, the candidate technologies identified by Respondents shall include innovative treatment technologies. The Identification of Candidate Technologies Memorandum shall be prepared by Respondents in accordance with this Settlement Agreement, the SOW and applicable EPA guidance. The Identification of Candidate Technologies Memorandum shall be submitted to EPA for approval pursuant to Section X (EPA Approval of Plans and Other Submissions).

(5) Task V - Treatability Studies. Respondents shall conduct treatability studies, if requested by EPA. The major components and deliverables of the treatability studies are described in the SOW and include, but are not limited to the Treatability Testing Statement of Work, Treatability Testing Work Plan, Treatability Study QAPP, Treatability Study Health and Safety Plan, and Treatability Study Evaluation Report. The treatability studies shall be performed according to this Settlement Agreement, the SOW and applicable EPA guidance. The deadlines for plans, reports and other deliverables are established in the SOW. All plans, reports and other deliverables shall be provided to EPA for approval pursuant to Section X (EPA Approval of Plans and Other Submissions).

(6) Task VI - Baseline Risk Assessments. Respondents shall perform the Baseline Human Health Risk Assessment and Ecological Risk Assessments ("Risk Assessments") in accordance with this Settlement Agreement, the SOW, the EPA approved RI/FS Work Plan and EPA guidance, including but not limited to: "Interim Final Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual (Part A)," (RAGS, EPA-540-1-89-002, OSWER Directive 9285.7-01A, December 1989); "Interim Final Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments)," (RAGS, EPA 540-R-97-033, OSWER Directive 9285.7-01D, January 1998); "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments" (ERAGS, EPA-540-R-97-006, OSWER Directive 9285.7-25, June 1997) or subsequently issued guidance. The deadlines for plans, reports and other deliverables for this Task are established in the SOW. The plans, reports and other deliverables described herein and in the SOW shall be provided to EPA for approval pursuant to Section X (EPA Approval of Plans and Other Submissions). The Risk Assessments shall include the following:

(i) Baseline Human Health Risk Assessment. Within 30 days of EPA's approval of the RI/FS Work Plan, Respondents shall submit to EPA a Memorandum on

Exposure Scenarios and Assumptions pursuant to the SOW and applicable EPA guidance. Within 30 days of Respondents' receipt of the last set of validated data, Respondents shall submit to EPA a Pathway Analysis Report prepared in accordance with the SOW and applicable EPA guidance. Within 30 days of EPA's approval of the Pathways Analysis Report, Respondents shall submit to EPA for approval a draft Baseline Human Health Risk Assessment for inclusion in the RI Report.

(ii) Baseline Ecological Risk Assessment. Within 45 days of Respondents' receipt of the last set of validated data, Respondents shall submit to EPA for approval a Screening- Level Ecological Risk Assessment. EPA will notify the Respondents in writing if EPA determines that a full Baseline Ecological Risk Assessment is required, and if so notified by EPA, Respondents shall perform a full Baseline Ecological Risk Assessment in accordance with the SOW and EPA guidance.

(7) Task VII - Remedial Investigation Report. Respondents shall submit a draft RI Report to EPA in accordance with this Settlement Agreement, the SOW, the EPA approved RI/FS Work Plan, and EPA guidance. Within 30 days of receiving EPA's comments on the draft RI Report, Respondents shall submit a final RI Report to EPA for approval pursuant to Section X (EPA Approval of Plans and other Submissions).

(8) Task VIII - Development and Screening of Alternatives. Respondents shall develop an appropriate range of waste management options that will be evaluated through the development and screening of alternatives, as provided in the SOW. Within 30 days of EPA's approval of the Risk Assessments, or within 30 days of EPA's approval of the Treatability Study Evaluation Report (if treatability studies are required), whichever is later, Respondents shall make a presentation to EPA and the State identifying the remedial action objectives and summarizing the development and preliminary screening of alternatives, and shall prepare and submit to EPA for approval pursuant to Section X (EPA Approval of Plans and other Submissions) a Development and Screening of Remedial Alternatives Technical Memorandum in accordance with this Settlement Agreement, the SOW and applicable EPA guidance. The Development and Screening of Remedial Alternatives Technical Memorandum shall summarize the development and screening of remedial alternatives.

(9) Task IX - Feasibility Study Report. Within 45 days of the presentation to EPA described in Paragraph 34(a)(8), Respondents shall submit to EPA a draft FS Report for EPA approval pursuant to Section X (EPA Approval of Plans and Other Submissions). Respondents shall prepare the FS report in accordance with this Settlement Agreement, the SOW and EPA guidance.

35. Upon receipt of the draft FS report, EPA will evaluate, as necessary, the estimates of the risk to the public and environment that are expected to remain after a particular remedial alternative has been completed and will evaluate the durability, reliability and effectiveness of

any proposed Engineering and/or Institutional Controls. Within 21 days of receiving EPA's comments on the draft FS Report, Respondents shall submit a revised draft of the FS Report that incorporates all of EPA's comments. The EPA approved RI/FS Report, and the administrative record, shall provide the basis for the proposed plan under CERCLA Sections 113(k) and 117(a) by EPA, and shall document the development and analysis of remedial alternatives.

36. Modification of the RI/FS Work Plan.

a. If at any time during the RI/FS process, Respondents identify a need for additional data, Respondents shall submit a memorandum documenting the need for additional data to the EPA's RPM within 30 days of identification. EPA in its discretion will determine whether the additional data will be collected by Respondents and whether it will be incorporated into plans, reports and other deliverables.

b. In the event of unanticipated or changed circumstances at the Site, Respondents shall notify the RPM by telephone within 7 days of discovery of the unanticipated or changed circumstances. In the event that EPA determines that the immediate threat or the unanticipated or changed circumstances warrant changes in the RI/FS Work Plan, EPA shall modify or amend the RI/FS Work Plan in writing accordingly. Respondents shall perform the RI/FS Work Plan as modified or amended.

c. EPA may determine that in addition to tasks defined in the initially approved RI/FS Work Plan, other additional Work may be determined to accomplish the objectives of the RI/FS. EPA must notify Respondents in writing of any such determination. Respondents agree to perform these response actions in addition to those required by the initially approved RI/FS Work Plan, including any approved modifications, if EPA determines that such actions are necessary for a complete RI/FS

d. Respondents shall indicate their willingness to perform the additional Work in writing to EPA within 7 days of receipt of the EPA request or such other longer time period as EPA may prescribe. If Respondents object to any modification determined by EPA to be necessary pursuant to this Paragraph, Respondents may seek dispute resolution pursuant to Section XV (Dispute Resolution). The SOW and/or RI/FS Work Plan shall be modified in accordance with the final resolution of the dispute.

e. Respondents shall complete the additional Work according to the standards, specifications, and schedule set forth or approved by EPA in a written modification to the RI/FS Work Plan or written RI/FS Work Plan supplement. EPA reserves the right to conduct the Work itself at any point, to seek reimbursement from Respondents, and/or to seek any other appropriate relief.

f. Nothing in this Paragraph shall be construed to limit EPA's authority to require

performance of further response actions at the Site.

37. Off-Site Shipment of Waste Material. Respondents shall, prior to any off-site shipment of Waste Material from the Site to an out-of-state waste management facility, provide written notification of such shipment of Waste Material to the appropriate state environmental official in the receiving facility's state and to EPA's RPM. However, this notification requirement shall not apply to any off-site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

a. Respondents shall include in the written notification the following information: (1) the name and location of the facility to which the Waste Material is to be shipped; (2) the type and quantity of the Waste Material to be shipped; (3) the expected schedule for the shipment of the Waste Material; and (4) the method of transportation. Respondents shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

b. The identity of the receiving facility and state will be determined by Respondents following the award of the contract for the remedial investigation and feasibility study. Respondents shall provide the information required by Subparagraph 37.a and 37.c as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

c. Before shipping any hazardous substances, pollutants, or contaminants from the Site to an off-site location, Respondents shall obtain EPA's certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondents shall only send hazardous substances, pollutants, or contaminants from the Site to an off-site facility that complies with the requirements of the statutory provision and regulation cited in the preceding sentence.

38. Meetings. Respondents shall make presentations at, and participate in, meetings at the request of EPA during the initiation, conduct, and completion of the RI/FS. In addition to discussion of the technical aspects of the RI/FS, topics will include anticipated problems or new issues. Meetings will be scheduled at EPA's primary discretion. However, all meetings will be mutually scheduled and jointly held.

39. Progress Reports. Commencing on the Effective Date, Respondents shall provide to EPA monthly progress reports by the 15th day of the following month. At a minimum, with respect to the preceding month, these progress reports shall (1) describe the actions which have been taken to comply with this Settlement Agreement during that month, (2) summarize all results of sampling and tests and all other data received by Respondents during that month, (3)

describe Work planned for the next two months with schedules relating such Work to the overall project schedule for RI/FS completion, and (4) describe all problems encountered and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated problems or delays.

40. Emergency Response and Notification of Releases.

a. In the event of any action or occurrence during performance of the Work which causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Respondents shall immediately take all appropriate action. Respondents shall take these actions in accordance with all applicable provisions of this Settlement Agreement, including, but not limited to, the Health and Safety Plan, in order to prevent, abate or minimize such release or endangerment caused or threatened by the release. Respondents shall also immediately notify the Emergency Spill Reporting Hotline at (732) 548-8730 and the EPA RPM or, in the event of his unavailability, the Chief of the New Jersey Remediation Branch of the Emergency and Remedial Response Division of EPA Region II at (212) 637-4420 of the incident or Site conditions. In the event that Respondents fail to take appropriate response action as required by this Paragraph, and EPA takes such action instead, Respondents shall reimburse EPA all costs of the response action not inconsistent with the NCP pursuant to Section XVIII (Payment of Response Costs).

b. In addition, in the event of any release of a hazardous substance from the Site, Respondents shall immediately notify the EPA RPM, the Chief of the New Jersey Remediation Branch of the Emergency and Remedial Response Division of EPA Region II at (212) 637-4420 and the National Response Center at (800) 424-8802. Respondents shall submit a written report to EPA within 7 days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the recurrence of such a release. This reporting requirement is in addition to, and not in lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C. § 9603(c), and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004, *et seq.*

**X. EPA APPROVAL OF PLANS AND OTHER SUBMISSIONS**

41. After review of any plan, report or other item that is required to be submitted for approval pursuant to this Settlement Agreement and the SOW, in a notice to Respondents EPA shall: (a) approve, in whole or in part, the submission; (b) approve the submission upon specified conditions; (c) modify the submission to cure the deficiencies; (d) disapprove, in whole or in part, the submission, directing that Respondents modify the submission; or (e) any combination of the above. However, EPA shall not modify a submission without first providing Respondents at least one notice of deficiency and an opportunity to cure within 14 days, except where to do so would cause serious disruption to the Work or where previous submission(s) have been

disapproved due to material defects.

42. In the event of approval, approval upon conditions, or modification by EPA, pursuant to Subparagraph 41(a), (b), (c) or (e), Respondents shall proceed to take any action required by the plan, report or other deliverable, as approved or modified by EPA subject only to their right to invoke the Dispute Resolution procedures set forth in Section XV (Dispute Resolution) with respect to the modifications or conditions made by EPA. Following EPA approval or modification of a submission or portion thereof, Respondents shall not thereafter alter or amend such submission or portion thereof unless directed by EPA. In the event that EPA modifies the submission to cure the deficiencies pursuant to Subparagraph 41(c) and the submission had a material defect, EPA retains the right to seek stipulated penalties, as provided in Section XVI (Stipulated Penalties). In the event that EPA seeks stipulated penalties, such stipulated penalties cease to accrue when the material defect is cured.

43. Resubmission.

a. Upon receipt of a notice of disapproval, Respondents shall, within 14 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the plan, report, or other deliverable for approval. Any stipulated penalties applicable to the submission, as provided in Section XVI, shall accrue during the 14-day period or otherwise specified period but shall not be payable unless the resubmission is disapproved or modified due to a material defect as provided in Paragraphs 44 and 45 and the stipulated penalties are demanded by EPA.

b. Notwithstanding the receipt of a notice of disapproval, Respondents shall proceed to take any action required by any non-deficient portion of the submission, unless otherwise directed by EPA. Implementation of any non-deficient portion of a submission shall not relieve Respondents of any liability for stipulated penalties under Section XVI (Stipulated Penalties).

c. Respondents shall not proceed further with any subsequent activities or tasks until receiving EPA approval, approval on condition or modification of the following deliverables: RI/FS Work Plan and Sampling and Analysis Plan, Draft Remedial Investigation Report and Treatability Testing Work Plan (if required) and Draft Feasibility Study Report. While awaiting EPA approval, approval on condition or modification of these deliverables, Respondents shall proceed with all other tasks and activities which may be conducted independently of these deliverables, in accordance with the schedule set forth under this Settlement Agreement.

d. For all remaining deliverables not listed above in subparagraph 43.c., Respondents shall proceed with all subsequent tasks, activities and deliverables without awaiting EPA approval on the submitted deliverable. EPA reserves the right to stop Respondents from

proceeding further, either temporarily or permanently, on any task, activity or deliverable at any point during the RI/FS.

44. If EPA disapproves a resubmitted plan, report or other deliverable, or portion thereof, EPA may again direct Respondents to correct the deficiencies. EPA shall also retain the right to modify or develop the plan, report or other deliverable. Respondents shall implement any such plan, report, or deliverable as corrected, modified or developed by EPA, subject only to Respondents' right to invoke the procedures set forth in Section XV (Dispute Resolution).

45. If upon resubmission, a plan, report, or other deliverable is disapproved or modified by EPA due to a material defect, Respondents shall be deemed to have failed to submit such plan, report, or other deliverable timely and adequately unless Respondents invoke the dispute resolution procedures in accordance with Section XV (Dispute Resolution) and EPA's action is revoked or substantially modified pursuant to a Dispute Resolution decision in accordance with the procedures in Section XV or superseded by an agreement reached pursuant to that Section. The provisions of Section XV (Dispute Resolution) and Section XVI (Stipulated Penalties) shall govern the implementation of the Work and accrual and payment of any stipulated penalties during Dispute Resolution. If EPA's disapproval or modification is not otherwise revoked, substantially modified or superseded as a result of a decision or agreement reached pursuant to the Dispute Resolution process set forth in Section XV, stipulated penalties shall accrue for such violation from the date on which the initial submission was originally required, as provided in Section XVI. Based upon review and approval by EPA, Respondents shall be permitted to submit as part of the RI/FS Report all results of sampling, tests, modeling or other data (including raw data) conducted prior to the Effective Date of this Settlement Agreement that Respondents can demonstrate were obtained in a manner consistent with the data in a manner consistent with the data quality requirements in place at the time the data were collected.

46. In the event that EPA takes over some of the tasks, but not the preparation of the RI Report or the FS Report, Respondents shall incorporate and integrate information supplied by EPA into the final reports.

47. All plans, reports, and other deliverables submitted to EPA under this Settlement Agreement shall, upon approval or modification by EPA, be incorporated into and enforceable under this Settlement Agreement. In the event EPA approves or modifies a portion of a plan, report, or other deliverable submitted to EPA under this Settlement Agreement, the approved or modified portion shall be incorporated into and enforceable under this Settlement Agreement.

48. Neither failure of EPA to expressly approve or disapprove of Respondents' submissions within a specified time period, nor the absence of comments, shall be construed as approval by EPA. Whether or not EPA gives express approval for Respondents' deliverables, Respondents are responsible for preparing deliverables acceptable to EPA.

## **XI. QUALITY ASSURANCE, SAMPLING, AND ACCESS TO INFORMATION**

49. Quality Assurance. Respondents shall assure that Work performed, samples taken and analyses conducted conform to the requirements of the SOW, the QAPP and guidances identified therein. Respondents will assure that field personnel used by Respondents are properly trained in the use of field equipment and in chain of custody procedures. Respondents shall only use laboratories which have a documented quality system that complies with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001) or equivalent documentation as determined by EPA.

### **50. Sampling.**

a. All results of sampling, tests, modeling or other data (including raw data) generated by Respondents, or on Respondents' behalf, during the period that this Settlement Agreement is effective, shall be submitted to EPA in the next monthly progress report as described in Paragraph 39 of this Settlement Agreement following receipt of the validated sampling results. Upon request, all results of sampling, tests or other data (including raw data) shall be available to EPA. EPA will make available to Respondents validated data generated by EPA unless it is exempt from disclosure by any federal or state law or regulation.

b. Respondents shall verbally notify EPA at least 14 days prior to conducting significant field events as described in the SOW, RI/FS Work Plan or Sampling and Analysis Plan. At EPA's verbal or written request by no later than the actual sampling event, or the request of EPA's oversight assistant, Respondents shall allow split or duplicate samples to be taken by EPA (and its authorized representatives) of any samples collected in implementing this Settlement Agreement. All split samples of Respondents shall be analyzed by the methods identified in the QAPP.

### **51. Access to Information.**

a. Respondents shall provide to EPA, upon request, copies of all documents and information within their possession or control or that of their contractors or agents relating to Work or to the implementation of this Settlement Agreement, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondents shall also make available to EPA, for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

b. Respondents may assert business confidentiality claims covering part or all of the documents or information submitted to EPA under this Settlement Agreement to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and

40 C.F.R. § 2.203(b). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when it is submitted to EPA, or if EPA has notified Respondents that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such documents or information without further notice to Respondents. Respondents shall segregate and clearly identify all documents or information submitted under this Settlement Agreement for which Respondents assert business confidentiality claims.

c. Respondents may assert that certain documents, records and other information are privileged under the attorney work product doctrine or the attorney-client privilege or any other privilege recognized by federal law. If the Respondents assert such a privilege in lieu of providing documents, they shall provide EPA with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the contents of the document, record, or information; and 6) the privilege asserted by Respondents. Any documents other than those protected by the attorney work product doctrine or the attorney-client privilege, shall be available upon request by EPA.

d. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

52. In entering into this Settlement Agreement, Respondents waive any objections to any data gathered, generated, or evaluated by EPA, the State or Respondents in the performance or oversight of the Work that has been verified according to the quality assurance/quality control ("QA/QC") procedures required by the Settlement Agreement or any EPA-approved RI/FS Work Plans or Sampling and Analysis Plans. If Respondents object to any other data relating to the RI/FS, Respondents shall submit to EPA a report that specifically identifies and explains its objections, describes the acceptable uses of the data, if any, and identifies any limitations to the use of the data. The report must be submitted to EPA within 14 days of the monthly progress report containing the data.

## **XII. SITE ACCESS**

53. If the Site, or any other property where access is needed to implement this Settlement Agreement, is owned or controlled by any of Respondents, such Respondents shall, commencing on the Effective Date, provide EPA, and its representatives, including contractors, with access at all reasonable times to the Site, or such other property, for the purpose of conducting any activity related to this Settlement Agreement.

54. Where any action under this Settlement Agreement is to be performed in areas owned by or in possession of someone other than Respondents, Respondents shall use their best efforts to obtain all necessary access agreements within 60 days after EPA's approval of the RI/FS Work Plan by the EPA Project Coordinator. Respondents shall promptly notify EPA if after using their best efforts they are unable to obtain such agreements. For purposes of this paragraph, "best efforts" may include the payment of reasonable sums of money in consideration of access. Respondents shall describe in writing their efforts to obtain access. If Respondents cannot obtain access agreements, EPA may either (i) obtain access for Respondents or assist Respondents in gaining access, to the extent necessary to effectuate the response actions described herein, using such means as EPA deems appropriate; (ii) perform those tasks or activities with EPA contractors; or (iii) terminate the Settlement Agreement. Respondents shall reimburse EPA for all costs and attorneys fees incurred by the United States in obtaining such access, in accordance with the procedures in Section XVIII (Payment of Response Costs). If EPA performs those tasks or activities with EPA contractors and does not terminate the Settlement Agreement, Respondents shall perform all other tasks or activities not requiring access to that property, and shall reimburse EPA for all costs incurred in performing such tasks or activities. Respondents shall integrate the results of any such tasks or activities undertaken by EPA into its plans, reports and other deliverables.

55. Notwithstanding any provision of this Settlement Agreement, EPA retains all of its access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations. Respondents retain all rights and defenses they may have concerning allowing EPA and its representatives access into any facilities at the Site owned or leased by Respondents, except as otherwise provided in this Settlement Agreement.

### **XIII. COMPLIANCE WITH OTHER LAWS**

56. Respondents shall comply with all applicable local, state and federal laws and regulations when performing the RI/FS. As provided in Section 121(e) of CERCLA and Section 300.400(e) of the NCP, no local, state, or federal permit shall be required for any portion of any action conducted entirely on-site, including studies, if the action is selected and carried out in compliance with Section 121 of CERCLA, 42 U.S.C. § 9621. Where any portion of the Work is to be conducted off-site and requires a federal or state permit or approval, Respondents shall submit timely and complete applications and take all other actions necessary to obtain and to comply with all such permits or approvals. This Settlement Agreement is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

### **XIV. RETENTION OF RECORDS**

57. During the pendency of this Settlement Agreement and for a minimum of 10 years after commencement of construction of any remedial action, each Respondent shall preserve and

retain all non-identical copies of documents, records, and other information (including documents, records, or other information in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or the liability of any person under CERCLA with respect to the Site, regardless of any corporate retention policy to the contrary. Until 10 years after commencement of construction of any remedial action, Respondents shall also instruct their contractors and agents to preserve all documents, records, and other information of whatever kind, nature or description relating to performance of the Work.

58. At the conclusion of this document retention period, Respondents shall notify EPA at least 90 days prior to the destruction of any such documents, records or other information, and, upon request by EPA, Respondents shall deliver any such documents, records, or other information to EPA. Respondents may assert that certain documents, records, and other information are privileged under the attorney work product doctrine or attorney-client privilege or any other privilege recognized by federal law. If Respondents assert such a privilege, they shall provide EPA with the following: 1) the title of the document, record, or other information; 2) the date of the document, record, or other information; 3) the name and title of the author of the document, record, or other information; 4) the name and title of each addressee and recipient; 5) a description of the subject of the document, record, or other information; and 6) the privilege asserted by Respondents. However, no documents, records or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged.

59. Each Respondent hereby certifies individually that to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information (other than identical copies) relating to its potential liability regarding the Site since the March 28, 2006 notification of potential liability by EPA or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA requests for information pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

## **XV. DISPUTE RESOLUTION**

60. Unless otherwise expressly provided for in this Settlement Agreement, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Settlement Agreement. The Parties shall attempt to resolve any disagreements concerning this Settlement Agreement expeditiously and informally.

61. If Respondents object to any EPA action taken pursuant to this Settlement Agreement, including billings for Future Response Costs, they shall notify EPA in writing of their objection(s) within 21 days of their notice of such action, unless the objection(s) has/have been resolved informally. EPA and Respondents shall have 30 days from EPA's receipt of

Respondents' written objection(s) to resolve the dispute (the "Negotiation Period"). The Negotiation Period may be extended at the sole discretion of EPA. Such extension may be granted verbally but must be confirmed in writing.

62. Any agreement reached by the Parties pursuant to this Section XV shall be in writing and shall, upon signature by the Parties, be incorporated into and become an enforceable part of this Settlement Agreement. If the Parties are unable to reach an agreement within the Negotiation Period, the Chief of the New Jersey Remediation Branch of the Emergency and Remedial Response Division, EPA Region II will issue a written decision. EPA's decision shall be incorporated into and become an enforceable part of this Settlement Agreement. Respondents' obligations under this Settlement Agreement shall not be tolled by submission of any objection for dispute resolution under this Section provided however, that if Respondents prevail in the Dispute, no Stipulated Penalties shall be due or owing. Following resolution of the dispute, as provided by this Section XV, Respondents shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with EPA's decision, whichever occurs, and regardless of whether Respondents agree with the decision.

#### **XVI. STIPULATED PENALTIES**

63. Respondents shall be liable to EPA for stipulated penalties in the amounts set forth in Paragraphs 64 and 65 for failure to comply with any of the requirements of this Settlement Agreement specified below unless excused under Section XVII (Force Majeure). "Compliance" by Respondents shall include completion of the Work under this Settlement Agreement or any activities required by any RI/FS Work Plan or other plan approved under this Settlement Agreement identified below, in accordance with all applicable requirements of law, this Settlement Agreement, the SOW, and any plans or other documents approved by EPA in writing pursuant to this Settlement Agreement and within the specified time schedules established by and approved under this Settlement Agreement.

##### **64. Stipulated Penalty Amounts**

a. For the following major deliverables required under this Settlement Agreement and the SOW: RI/FS Work Plan and Schedule, Sampling and Analysis Plan, Quality Assurance/Quality Control Project Plan, Health and Safety Plan, Site Characterization Summary Report, an Identification of Candidate Technologies Memorandum, Treatability Study Evaluation Report, Baseline Human Health Risk Assessment, Screening-Level Ecological Risk Assessment, Final Baseline Ecological Risk Assessment, Draft Remedial Investigation Report, Remedial Investigation Report, Development and Screening of Remedial Alternatives Technologies Memorandum, Draft Feasibility Study Report, and Feasibility Study Report, stipulated penalties shall accrue per violation per day for failure to submit timely and adequate deliverables, in the following amounts:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 1,250	1 to 14 days
\$ 2,500	15 days or more

b. For the following interim deliverables required under this Settlement Agreement and the SOW: Treatability Testing Statement of Work, Treatability Testing Work Plan and Schedule, Treatability Study QAPP, Treatability Study Health and Safety Plan, Memorandum on Exposure Scenarios and Assumptions, and the Pathway Analysis Report, stipulated penalties shall accrue per violation per day for failure to submit timely and adequate deliverables, in the following amounts:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 1,000	1 to 14 days
\$ 2,000	15 days or more

c. For failure to submit timely and adequate monthly progress reports, certificates of insurance, the name of the Project Coordinator (pursuant to Section VIII of this Settlement Agreement), payments pursuant to Section XVIII, or any other violations of this Settlement Agreement not specified in Paragraphs 64.a and 64.b. above, stipulated penalties shall accrue per violation per day in the following amounts:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 750	1 to 14 days
\$ 1,500	15 days or more

65. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 84 of Section XX (Reservation of Rights by EPA), Respondents shall be liable for a stipulated penalty in the amount of \$100,000.

66. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: (1) with respect to a deficient submission under Section X (EPA Approval of Plans and Other Submissions), during the period, if any, beginning on the 31<sup>st</sup> day after EPA's receipt of such submission until the date that EPA notifies Respondents of any deficiency; and (2) with respect to a decision by the EPA Management Official designated in Paragraph 62 of Section XV (Dispute Resolution), during the period, if any, beginning on the 21<sup>st</sup> day after the Negotiation Period begins until the date that the EPA Management Official issues a final decision regarding such dispute. Nothing herein shall prevent the simultaneous accrual of separate penalties for

separate violations of this Settlement Agreement.

67. Following EPA's determination that Respondents have failed to comply with a requirement of this Settlement Agreement, EPA may give Respondents written notification of the same and describe the noncompliance. EPA may send Respondents a written demand for the payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph 66 regardless of whether EPA has notified Respondents of a violation.

68. All penalties accruing under this Section shall be due and payable to EPA within 60 days of Respondents' receipt from EPA of a written demand for payment of the penalties, unless Respondents invoke the dispute resolution procedures in accordance with Section XV (Dispute Resolution). All payments to EPA under this Section shall indicate that the payment is for stipulated penalties, and shall be remitted via Electronic Funds Transfer ("EFT"), along with the following information, to EPA's account with the Federal Reserve Bank of New York, NY as follows:

- i. Amount of payment:
- ii. Bank: Federal Reserve Bank of New York
- iii. Account code for Federal Reserve Bank of New York account receiving the payment: 68010727
- iv. Federal Reserve Bank ABA Routing Number: 021030004
- v. SWIFT Address: FRNYUS33  
33 Liberty Street, New York, NY 10045
- vi. Field Tag 4200 of the Fedwire message should read:  
**D 68010727 Environmental Protection Agency**
- vii. Name and address of Party making payment
- viii. EPA Docket Number: CERCLA 02-2008-2003
- ix. Site/Spill Identifier Number: 0258

69. To ensure that a payment is properly recorded, a letter should be sent or e-mailed, within one week after the EFT, which references the date of the EFT, the payment amount, that the payment is for stipulated penalties, the name of the Site, the case Index number, and the name and address of the party making payment to the RPM as specified in Paragraph 31, and also to:

U.S. Environmental Protection Agency  
26 W Martin Luther King Drive  
Cincinnati Finance Center, MS: NWD  
Cincinnati, Ohio 45268  
AcctsReceivable.CINWD@epa.gov

and

Fair Lawn Well Field Site Attorney  
U.S. Environmental Protection Agency, Region II  
Office of Regional Counsel, New Jersey Superfund Branch  
290 Broadway, 17<sup>th</sup> Floor  
New York, New York 10007

70. The payment of penalties shall not alter in any way Respondents' obligation to complete performance of the Work required under this Settlement Agreement.

71. Penalties shall continue to accrue as provided in Paragraph 67 during any dispute resolution period, but need not be paid until 20 days after the dispute is resolved by agreement or by receipt of EPA's written decision.

72. If Respondents fail to pay stipulated penalties when due, EPA may institute proceedings to collect the penalties, as well as Interest. Respondents shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 68.

73. Nothing in this Settlement Agreement shall be construed as prohibiting, altering, or in any way limiting the ability of EPA to seek any other remedies or sanctions available by virtue of Respondents' violation of this Settlement Agreement or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l), and punitive damages pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Provided, however, that EPA shall not seek civil penalties pursuant to Section 122(l) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided herein, except in the case of willful violation of this Settlement Agreement or in the event that EPA assumes performance of a portion or all of the Work pursuant to Section XX (Reservation of Rights by EPA), Paragraph 84. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Settlement Agreement.

## XVII. FORCE MAJEURE

74. Respondents agree to perform all requirements of this Settlement Agreement within the time limits established under this Settlement Agreement, unless the performance is delayed by a *force majeure*. For purposes of this Settlement Agreement, *force majeure* is defined as any event arising from causes beyond the control of Respondents or of any entity controlled by Respondents, including but not limited to their contractors and subcontractors, which delays or prevents performance of any obligation under this Settlement Agreement despite Respondents' best efforts to fulfill the obligation. *Force majeure* does not include financial inability to complete the Work or increased cost of performance.

75. If any event occurs or has occurred that may delay the performance of any obligation under this Settlement Agreement, whether or not caused by a *force majeure* event, Respondents shall notify EPA orally within five (5) days of when Respondents first knew that the event might cause a delay. Within seven (7) days thereafter, Respondents shall provide to EPA in writing an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondents' rationale for attributing such delay to a *force majeure* event if they intend to assert such a claim; and a statement as to whether, in the opinion of Respondents, such event may cause or contribute to an endangerment to public health, welfare or the environment. Failure to comply with the above requirements shall preclude Respondents from asserting any claim of *force majeure* for that event for the period of time of such failure to comply and for any additional delay caused by such failure.

76. If EPA agrees that the delay or anticipated delay is attributable to a *force majeure* event, the time for performance of the obligations under this Settlement Agreement that are affected by the *force majeure* event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the *force majeure* event shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a *force majeure* event, EPA will notify Respondents in writing of its decision. If EPA agrees that the delay is attributable to a *force majeure* event, EPA will notify Respondents in writing of the length of the extension, if any, for performance of the obligations affected by the *force majeure* event.

### **XVIII. PAYMENT OF RESPONSE COSTS**

#### **77. Payment of Past Response Costs.**

a. Within 60 days after the Effective Date, Respondents shall pay to EPA \$1,600,000.00 for Past Response Costs. Payment shall be made to EPA by EFT, along with the following information, to EPA's account with the Federal Reserve Bank of New York, NY as follows:

- i. Amount of payment:
- ii. Bank: Federal Reserve Bank of New York
- iii. Account code for Federal Reserve Bank of New York account receiving the payment: 68010727
- iv. Federal Reserve Bank ABA Routing Number: 021030004
- v. SWIFT Address: FRNYUS33  
33 Liberty Street, New York, NY 10045
- vi. Field Tag 4200 of the Fedwire message should read:

**D 68010727 Environmental Protection Agency**

- vii. Name and address of Party making payment
- viii. EPA Docket Number: CERCLA 02-2008-2003
- ix. Site/Spill Identifier Number: 0258

b. To ensure that a payment is properly recorded, a letter should be sent or e-mailed, after one week after the EFT, which references the date of the EFT, the payment amount, that the payment is for Past Response Costs, the name of the Site, the case Index number, and the name and address of the party making payment to the RPM as specified in Paragraph 31, and also to:

U.S. Environmental Protection Agency  
26 W Martin Luther King Drive  
Cincinnati Finance Center, MS: NWD  
Cincinnati, Ohio 45268  
AcctsReceivable.CINWD@epa.gov

and

Fair Lawn Well Field Site Attorney  
U.S. Environmental Protection Agency, Region II  
Office of Regional Counsel, New Jersey Superfund Branch  
290 Broadway, 17<sup>th</sup> Floor  
New York, New York 10007

c. The total amount to be paid by Respondents pursuant to Subparagraph 77.a shall be deposited in the Fair Lawn Well Field Special Account within the EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

**78. Payments of Future Response Costs (includes Interim Response Costs).**

a. Respondents shall pay EPA all Future Response Costs that are not inconsistent with the NCP as provided in Paragraph 80 of the Settlement Agreement. On a periodic basis, EPA will send Respondents a bill and a cost summary known as a SCORPIOS report, which will include direct and indirect costs incurred by EPA and its contractors.

b. Respondents shall make all payments within 45 days of receipt of each bill requiring payment, except as otherwise provided in Paragraph 79 of this Settlement Agreement, by remitting the amount of those costs via EFT and pursuant to the instructions provided in Paragraph 77.

c. The total amount to be paid by Respondents pursuant to Subparagraph 78.a. shall be deposited in the Fair Lawn Well Field Special Account within the EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

79. If Respondents do not pay Past Response Costs within 75 days of the Effective Date, or do not pay Future Response Costs within 45 days of Respondents' receipt of a bill, Respondents shall pay Interest on the unpaid balance of Past Response Costs and Future Response Costs, respectively. The Interest on unpaid Past Response Costs shall begin to accrue on the Effective Date and shall continue to accrue until the date of payment. The Interest on unpaid Future Response Costs shall begin to accrue on the date of the bill and shall continue to accrue until the date of payment. If EPA receives a partial payment, Interest shall accrue on any unpaid balance. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of Respondents' failure to make timely payments under this Section, including but not limited to, payments of stipulated penalties pursuant to Section XVI. Respondents shall make all payments required by this Paragraph in the manner described in Paragraph 78.

80. Respondents may contest payment of any Future Response Costs under Paragraph 78 if they determine that EPA has made a mathematical error or if they believe EPA incurred excess costs as a direct result of an EPA action that was inconsistent with the NCP. Such objection shall be made in writing within 45 days of receipt of the bill and must be sent to the EPA RPM and EPA Site Attorney. Any such objection shall specifically identify the contested Future Response Costs and the basis for objection. In the event of an objection, Respondents shall within the 45 day period pay all uncontested Future Response Costs to EPA in the manner described in Paragraph 78. Simultaneously, Respondents shall establish an interest-bearing escrow account in a federally-insured bank duly chartered in the State of New Jersey and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. Respondents shall send to the EPA RPM and the EPA Site Attorney a copy of the transmittal letter and check paying the uncontested Future Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. Simultaneously with establishment of the escrow account, Respondents shall initiate the Dispute Resolution procedures in Section XV (Dispute Resolution). If EPA prevails in the dispute, within 5 days of the resolution of the dispute, Respondents shall pay the sums due (with accrued interest) to EPA in the manner described in Paragraph 78. If Respondents prevail concerning any aspect of the contested costs, Respondents shall pay that portion of the costs (plus associated accrued interest) for which they did not prevail to EPA in the manner described in Paragraph 78. Respondents shall be disbursed any balance of the escrow account. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XV (Dispute Resolution) shall be the

exclusive mechanisms for resolving disputes regarding Respondents' obligation to reimburse EPA for its Future Response Costs.

#### **XIX. COVENANT NOT TO SUE BY EPA**

81. In consideration of the actions that will be performed and the payments that will be made by Respondents under the terms of this Settlement Agreement, and except as otherwise specifically provided in this Settlement Agreement, EPA covenants not to sue or to take administrative action against Respondents pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for the Work performed under this Settlement Agreement and for recovery of Past Response Costs and Future Response Costs. This covenant not to sue shall take effect upon receipt by EPA of the Past Response Costs due under Section XVIII of this Settlement Agreement and any Interest or Stipulated Penalties due for failure to pay Past Response Costs as required by Sections XVIII and XVI of this Settlement Agreement. This covenant not to sue is conditioned upon the complete and satisfactory performance by Respondents of their obligations under this Settlement Agreement, including, but not limited to, payment of Future Response Costs pursuant to Section XVIII. This covenant not to sue extends only to Respondents and does not extend to any other persons.

#### **XX. RESERVATIONS OF RIGHTS BY EPA**

82. Except as specifically provided in this Settlement Agreement, nothing herein shall limit the power and authority of EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing herein shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Settlement Agreement, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring Respondents in the future to perform additional activities pursuant to CERCLA or any other applicable law.

83. The covenant not to sue set forth in Section XIX above does not pertain to any matters other than those expressly identified therein. EPA reserves, and this Settlement Agreement is without prejudice to, all rights against Respondents with respect to all other matters, including, but not limited to:

- a. claims based on a failure by Respondents to meet a requirement of this Settlement Agreement;
- b. liability for costs not included within the definitions of Past Response Costs or Future Response Costs;
- c. liability for performance of response action other than the Work;

d. criminal liability;

e. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;

f. liability arising from the past, present, or future disposal, release or threat of release of Waste Materials outside of the Site; and

g. liability for costs incurred or to be incurred by the Agency for Toxic Substances and Disease Registry related to the Site beyond those included in its September 30, 2004 cost summary.

84. Work Takeover. In the event EPA determines that Respondents have ceased implementation of any portion of the Work, are seriously or repeatedly deficient or late in their performance of the Work, or are implementing the Work in a manner which may cause an endangerment to human health or the environment, EPA may assume the performance of all or any portion of the Work as EPA determines necessary. EPA shall first provide Respondents with 20 days advance written notice of its intent to take over the Work and shall provide Respondents with 20 days to cure such deficiencies, unless EPA determines that imminent and substantial endangerment to human health or the environment would otherwise occur. Respondents may invoke the procedures set forth in Section XV (Dispute Resolution) to dispute EPA's determination that takeover of the Work is warranted under this Paragraph. Costs incurred by EPA in performing the Work pursuant to this Paragraph shall be considered Future Response Costs that Respondents shall pay pursuant to Section XVIII (Payment of Response Costs). Notwithstanding any other provision of this Settlement Agreement, EPA retains all authority and reserves all rights to take any and all response actions authorized by law.

#### **XXI. COVENANT NOT TO SUE BY RESPONDENTS**

85. Respondents covenant not to sue and agree not to assert any claims or causes of action against the United States, or its contractors or employees, with respect to the Work, Past Response Costs, Future Response Costs, or this Settlement Agreement, including, but not limited to:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund established by 26 U.S.C. § 9507, based on Sections 106(b)(2), 107, 111, 112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law;

b. any claim arising out of the Work or arising out of the response actions for which the Past Response Costs or Future Response Costs have or will be incurred, including any claim under the United States Constitution, the New Jersey Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common

law; or

c. any claim against the United States pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, relating to the Work or payment of Past Response Costs or Future Response Costs.

86. These covenants not to sue shall not apply in the event the United States brings a cause of action or issues an order pursuant to the reservations set forth in Paragraphs 83 (b), (c), and (e) - (g), but only to the extent that Respondents' claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

87. Nothing in this Agreement shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

## **XXII. OTHER CLAIMS**

88. By issuance of this Settlement Agreement, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondents.

89. Except as expressly provided in Section XIX (Covenant Not to Sue by EPA), nothing in this Settlement Agreement constitutes a satisfaction of or release from any claim or cause of action against Respondents or any person not a party to this Settlement Agreement, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

90. No action or decision by EPA pursuant to this Settlement Agreement shall give rise to any right to judicial review except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

## **XXIII. CONTRIBUTION**

91. a. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(2) of CERCLA, 42 U.S.C. §9613(f)(2), and that Respondents are entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), for "matters addressed" in this Settlement Agreement. The "matters addressed" in this Settlement Agreement are the Work, Past Response Costs, and Future Response Costs.

b. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B), pursuant to which Respondents have, as of the Effective Date, resolved their liability to the United States for the Work, Past Response Costs, and Future Response Costs.

c. Nothing in this Settlement Agreement precludes the United States or Respondents from asserting any claims, causes of action, or demands for indemnification, contribution, or cost recovery against any person not a party to this Settlement Agreement. Nothing herein diminishes the right of the United States, pursuant to Sections 113(f)(2) and (3) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and (3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

#### **XXIV. INDEMNIFICATION**

92. Respondents shall indemnify, save and hold harmless the United States, its officials, agents, contractors, subcontractors, employees and representatives from any and all claims or causes of action arising from, or on account of negligent or other wrongful acts or omissions of Respondents, their officers, directors, employees, agents, contractors, or subcontractors, in carrying out actions pursuant to this Settlement Agreement. In addition, Respondents agree to pay the United States all costs incurred by the United States, including but not limited to attorneys fees and other expenses of litigation and settlement, arising from or on account of claims made against the United States based on negligent or other wrongful acts or omissions of Respondents, their officers, directors, employees, agents, contractors, subcontractors and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Settlement Agreement. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondents in carrying out activities pursuant to this Settlement Agreement. Neither Respondents nor any such contractor shall be considered an agent of the United States.

93. The United States shall give Respondents notice of any claim for which the United States plans to seek indemnification pursuant to this Section and shall consult with Respondents prior to settling such claim.

94. Respondents waive all claims against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between any one or more of Respondents and any person for performance of Work on or relating to the Site. In addition, Respondents shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between any one or more of Respondents and any person for performance of Work on or relating to the Site.

## **XXV. INSURANCE**

95. At least 30 days prior to commencing any on-Site Work under this Settlement Agreement, Respondents shall secure, and shall maintain for the duration of this Settlement Agreement, comprehensive general liability insurance and automobile insurance with limits of five (5) million dollars, combined single limit, naming the EPA as an additional insured. Within the same period, Respondents shall provide EPA with certificates of such insurance and a copy of each insurance policy. Respondents shall submit such certificates and copies of policies each year on the anniversary of the Effective Date. In addition, for the duration of the Settlement Agreement, Respondents shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Respondents in furtherance of this Settlement Agreement. If Respondents demonstrate by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in an equal or lesser amount, then Respondents need provide only that portion of the insurance described above which is not maintained by such contractor or subcontractor.

## **XXVI. FINANCIAL ASSURANCE**

96. Within 30 days of the Effective Date, Respondents shall establish and maintain financial security for the benefit of EPA in the amount of \$1,500,000.00 in one or more of the following forms, in order to secure the full and final completion of Work by Respondents:

- a. a surety bond unconditionally guaranteeing payment and/or performance of the Work;
- b. one or more irrevocable letters of credit, payable to or at the direction of EPA, issued by financial institution(s) acceptable in all respects to EPA equaling the total estimated cost of the Work;
- c. a trust fund administered by a trustee acceptable in all respects to EPA;
- d. a policy of insurance issued by an insurance carrier acceptable in all respects to EPA, which ensures the payment and/or performance of the Work;
- e. a corporate guarantee to perform the Work provided by one or more parent corporations or subsidiaries of Respondents, or by one or more unrelated corporations that have a substantial business relationship with at least one of Respondents; including a demonstration that any such company satisfies the financial test requirements of 40 C.F.R. Part 264.143(f); and/or
- f. a corporate guarantee to perform the Work by one or more of Respondents,

including a demonstration that any such Respondent satisfies the requirements of 40 C.F.R. Part 264.143(f).

97. Any and all financial assurance instruments provided pursuant to this Section shall be in form and substance satisfactory to EPA, determined in EPA's sole discretion. In the event that EPA determines at any time that the financial assurances provided pursuant to this Section (including, without limitation, the instrument(s) evidencing such assurances) are inadequate, Respondents shall, within 45 days of receipt of notice of EPA's determination, obtain and present to EPA for approval one of the other forms of financial assurance listed in Paragraph 96, above. In addition, if at any time EPA notifies Respondents that the anticipated cost of completing the Work has increased, then, within 45 days of such notification, Respondents shall obtain and present to EPA for approval a revised form of financial assurance (otherwise acceptable under this Section) that reflects such cost increase. Respondents' inability to demonstrate financial ability to complete the Work shall in no way excuse performance of any activities required under this Settlement Agreement.

98. If Respondents seek to ensure completion of the Work through a guarantee pursuant to Subparagraph 96.e. or 96.f. of this Settlement Agreement, Respondents shall (i) demonstrate to EPA's satisfaction that the guarantor satisfies the requirements of 40 C.F.R. Part 264.143(f); and (ii) resubmit sworn statements conveying the information required by 40 C.F.R. Part 264.143(f) annually, on the anniversary of the Effective Date, to EPA. For the purposes of this Settlement Agreement, wherever 40 C.F.R. Part 264.143(f) references "sum of current closure and post-closure costs estimates and the current plugging and abandonment costs estimates," the current cost estimate of \$1,500,000.00 for the Work at the Site shall be used in relevant financial test calculations.

99. If, after the Effective Date, Respondents can show that the estimated cost to complete the remaining Work has diminished below the amount set forth in Paragraph 96 of this Section, Respondents may, on any anniversary date of the Effective Date, or at any other time agreed to by the Parties, reduce the amount of the financial security provided under this Section to the estimated cost of the remaining Work to be performed. Respondents shall submit a proposal for such reduction to EPA, in accordance with the requirements of this Section, and may reduce the amount of the security after receiving written approval from EPA. In the event of a dispute, Respondents may seek dispute resolution pursuant to Section XV (Dispute Resolution). Respondents may reduce the amount of security in accordance with EPA's written decision resolving the dispute.

100. Respondents may change the form of financial assurance provided under this Section at any time, upon notice to and prior written approval by EPA, provided that EPA determines that the new form of assurance meets the requirements of this Section. In the event of a dispute, Respondents may change the form of the financial assurance only in accordance with the written decision resolving the dispute.

## **XXVII. INTEGRATION/APPENDICES**

101. This Settlement Agreement and its appendices and any deliverables, technical memoranda, specifications, schedules, documents, plans, reports (other than progress reports), etc. that will be developed pursuant to this Settlement Agreement and become incorporated into and enforceable under this Settlement Agreement constitute the final, complete and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Settlement Agreement. The Parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Settlement Agreement. The following appendices are attached to and incorporated into this Settlement Agreement:

"Appendix A" is the SOW.

## **XXVIII. ADMINISTRATIVE RECORD**

102. EPA will determine the contents of the administrative record file for selection of the remedial action. Respondents shall submit to EPA documents developed during the course of the RI/FS upon which selection of the response action may be based. Upon request of EPA, Respondents shall provide copies of plans, task memoranda for further action, quality assurance memoranda and audits, raw data, field notes, laboratory analytical reports and other reports. Upon request of EPA, Respondents shall additionally submit any previous studies conducted under state, local or other federal authorities relating to selection of the response action, and all communications between Respondents and state, local or other federal authorities concerning selection of the response action. At EPA's discretion, Respondents shall establish a community information repository at or near the Site, to house one copy of the administrative record.

## **XXIX. PUBLIC COMMENT**

103. This Settlement Agreement shall be subject to a public comment period of not less than 30 days pursuant to Section 122(i) of CERCLA, 42 U.S.C. § 9622(i). In accordance with Section 122(i)(3) of CERCLA, EPA may modify or withdraw its consent to this Settlement Agreement if comments received disclose facts or considerations which indicate that the Settlement Agreement is inappropriate, improper or inadequate.

## **XXX. ATTORNEY GENERAL APPROVAL**

104. This Settlement Agreement is subject to the approval of the Attorney General or his/her designee in accordance with Section 122(h)(1) of CERCLA, 42 U.S.C. § 9622(h)(1).

### **XXXI. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION**

105. The Effective Date of this Settlement Agreement shall be the date upon which EPA issues written notice to the Respondents that the public comment period pursuant to Paragraph 103 has closed and that comments received, if any, do not require modification of or EPA withdrawal from this Settlement Agreement.

106. This Settlement Agreement may be amended by mutual agreement of EPA and Respondents. Amendments shall be in writing and shall be effective when signed by EPA.

107. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by Respondents will be construed as relieving Respondents of its obligations to obtain such formal approval as may be required by this Settlement Agreement. Any deliverables, plans, technical memoranda, reports (other than progress reports), specifications, schedules and other documents required to be submitted to EPA pursuant to this Settlement Agreement shall, upon approval by EPA, be deemed to be incorporated in and an enforceable part of this Settlement Agreement.

### **XXXII. NOTICE OF COMPLETION OF WORK**

108. When EPA determines that all Work has been fully performed and completed in accordance with this Settlement Agreement, with the exception of any continuing obligations required by this Settlement Agreement, including but not limited to, retention of records and payment of Future Response Costs, EPA will provide written notice to Respondents ("EPA RI/FS Work Completion Notice"). If EPA determines that any such Work has not been completed in accordance with this Settlement Agreement, EPA will notify Respondents, provide a list of the deficiencies, and require that Respondents modify the RI/FS Work Plan if appropriate in order to correct such deficiencies, in accordance with Paragraph 36 (Modification of the Work Plan). Failure by Respondents to implement the approved modified RI/FS Work Plan shall be a violation of this Settlement Agreement. Respondents obligations to EPA to perform the Work under this Settlement Agreement shall be deemed satisfied upon Respondents' receipt of EPA's RI/FS Work Completion Notice.

Each signatory identified below certifies that he or she is fully authorized to represent his or her respective Respondent in this matter, to agree to the terms and conditions of this Settlement Agreement on behalf of his or her respective Respondent and to bind his or her Respondent to all of the terms and conditions of this Settlement Agreement. Respondents agree to enter into this Settlement Agreement and to be bound by its terms.

For Respondent Frisher Scientific Co LLC

By: 

Jim Neville, VP/GM, ATG/BID  
Title: Vice President/general Manager  
Global Chemicals


Date: November 29, 2007

Address: 2000 Park Lane  
Pittsburgh PA 15275

Phone Number: 412 490 8300

Each signatory identified below certifies that he or she is fully authorized to represent his or her respective Respondent in this matter, to agree to the terms and conditions of this Settlement Agreement on behalf of his or her respective Respondent and to bind his or her Respondent to all of the terms and conditions of this Settlement Agreement. Respondents agree to enter into this Settlement Agreement and to be bound by its terms.

For Respondent Eastman Kodak Company

By: David M. Kahn 

Title: Director and Vice President

Date: 12-13-07

Address: 1999 Lake Avenue  
Rochester, NY 14650-2206

Phone Number: 585-722-5036

Each signatory identified below certifies that he or she is fully authorized to represent his or her respective Respondent in this matter, to agree to the terms and conditions of this Settlement Agreement on behalf of his or her respective Respondent and to bind his or her Respondent to all of the terms and conditions of this Settlement Agreement. Respondents agree to enter into this Settlement Agreement and to be bound by its terms.

For Respondent Sandvik Inc.

By: Richard M. [Signature]

Title: President

Date: 11/30/07

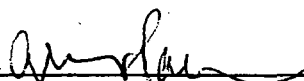
Address: 1702 Nevins Rd

Fair Lawn, N.J.

Phone Number: 201-794-5000

For the United States Environmental Protection Agency

BY:

  
George Pavlou, Director  
Emergency and Remedial Response Division  
U.S. Environmental Protection Agency  
Region II

DATE:

12/20/07

## APPENDIX A

### STATEMENT OF WORK REMEDIAL INVESTIGATION AND FEASIBILITY STUDY FAIR LAWN WELL FIELD SUPERFUND SITE BOROUGH OF FAIR LAWN, BERGEN COUNTY, NEW JERSEY

#### INTRODUCTION

1. The purpose of this remedial investigation/feasibility study ("RI/FS") is to evaluate the effectiveness of the current remediation system (air stripper) in treating contaminated groundwater and to evaluate other potential remedial alternatives at the Fair Lawn Well Field Superfund Site (the "Site"), pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"). The RI and FS are interactive and may be conducted concurrently so that the data presented in the RI influences the development of remedial alternatives in the FS, which in turn affects the data needs and the scope of treatability studies, if needed.

2. This RI/FS effort will utilize, to the extent practicable, existing data generated from previous investigations and interim remedial activities conducted at the Site. This includes, but is not limited to, the field investigation activities completed to date by the Respondents under their respective Administrative Orders on Consent with the New Jersey Department of Environmental Protection ("NJDEP") and the work performed by the United States Geological Survey ("USGS") under an interagency agreement with the Environmental Protection Agency ("EPA").

3. The Respondents shall conduct this RI/FS and shall produce draft RI and FS reports that are in accordance with this Statement of Work ("SOW"), the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (U.S. EPA, Office of Emergency and Remedial Response, October 1988), and any updates thereto. The RI/FS Guidance describes the report format and the required report content. The Respondents shall furnish all necessary personnel, materials, and services needed for, or incidental to, the performance of the RI/FS, except as otherwise specified in this Settlement Agreement.

4. At the completion of the RI/FS, EPA will be responsible for the selection of the remedy for the Site and will document the selection in a Record of Decision ("ROD"). The remedial action alternative selected by EPA will meet the cleanup standards specified in CERCLA Section 121. That is, the selected remedial action will be protective of human health and the environment, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements of other laws, will be cost-effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable, and will address the statutory preference for treatment as a principal element. The final RI/FS report, as adopted by EPA, and the baseline risk assessment will, with the administrative record, form the basis for the selection of the remedy for the Site

and will provide the information necessary to support the development of the ROD.

5. As specified in CERCLA Section 104(a)(1), as amended by SARA, EPA will provide oversight of Respondents activities throughout the RI/FS. Respondents shall support EPA's initiation and conduct of activities related to the implementation of oversight activities.

## **TASK I - RI/FS WORK PLAN**

1. The RI/FS is conducted to compile existing data and information about the Site, and if required, gather supplemental data necessary to characterize the nature and extent of contamination in order to support the selection of a remedy for the Site that will reduce or eliminate risks to human health or the environment associated with contamination at the Site. For purposes of this SOW, the Respondents will focus the evaluation on the area within the Site encompassing the properties owned by the Respondents and extending toward and encompassing the Westmoreland Well Field. Should the evaluation indicate that contamination has migrated from the Respondents' properties to locations outside the focus area then Respondents will be required to extend their efforts under this SOW and evaluate possible impacts on those additional areas.

2. The RI/FS achieves its objectives by determining the horizontal and vertical distribution and concentration of hazardous substances in the soil, sediment, surface water and groundwater and their association with the Site.

3. Within *twenty (21) days* after the Effective Date of this Settlement Agreement and prior to drafting the RI/FS Work Plan, the Respondents shall compile and review all available existing data on sources and areas of contamination at the Site including Henderson Brook and the Eastman Kodak Company, Fisher Scientific Company, LLC, and Sandvik, Inc. facilities. Respondents may use existing data to the extent that it meets EPA's Quality Assurance/Quality Control requirements in place at the time the data was collected.

4. The Respondents shall conduct a visit to the Site including Henderson Brook early in the scoping phase of the project to assist in developing a conceptual understanding of sources and areas of contamination as well as potential exposure pathways and receptors at the Site. During the visit to the Site, the Respondents should observe the Site's physiography, hydrology, geology, and demography, as well as natural resource, ecological and cultural features. This information will be utilized to determine whether supplemental data is necessary to characterize the Site; the extent of the supplemental data to be obtained, if deemed necessary; better define potential Applicable or Relevant and Appropriate Requirements ("ARARs"); and narrow the range of preliminarily identified remedial alternatives.

5. After the Respondents have compiled and evaluated existing data; conducted a visit to the Site; and determined whether supplemental data is needed, the Respondents will present a summary of their findings to EPA within *sixty (60) days* after the Effective Date of this

Settlement Agreement. After this presentation, the project specific tasks will be planned. Project planning activities include those tasks described below including, but not limited to identifying supplemental data needs, developing a work plan, designing a data collection program, and identifying health and safety protocols.

6. RI/FS Work Plan and Schedule. Within *ninety (90) days* after the Effective Date of this Settlement Agreement, the Respondents shall submit to EPA an RI/FS Work Plan for the completion of the RI/FS. The RI/FS Work Plan should include, among other things, a detailed schedule for RI/FS activities at the Site. The schedule shall provide for the completion of the RI/FS within *twelve (12) months* of EPA's approval of the RI/FS Work Plan. If EPA disapproves, or requires revisions to, the RI/FS Work Plan in whole or in part, the Respondents shall amend and submit to EPA a revised Work Plan which is responsive to the directions in all EPA comments, within *fourteen (14) days* after receiving EPA's comments. If supplemental data will be collected, the RI/FS Work Plan shall include the following components:

- A. A Sampling and Analysis Plan ("SAP") that contains a schedule and the rationale for the supplemental RI sampling activities to be conducted by the Respondents, and includes the following elements:
  - I. A detailed description of the sampling, analysis, and monitoring which shall be performed during the RI/FS phase, consistent with this SOW and Settlement Agreement. At a minimum, the RI/FS work plan shall provide the following:
    - a. A plan to obtain supplemental data deemed necessary to fill any data gaps in order to determine and assess the nature and extent of contamination at the Site including Henderson Brook;
    - b. A plan to perform a vapor intrusion study at the Site; and
    - c. A plan for evaluating the performance of the air stripper system at the Westmoreland Well Field.
  - ii. All sampling, analysis, data assessment, and monitoring shall be performed in accordance with an EPA approved Quality Assurance/Quality Control Project Plan. All testing methods and procedures shall be fully documented and referenced to established methods or standards.
- B. A Quality Assurance/Quality Control Project Plan ("QAPP") that describes the project objectives and organization, functional activities, and quality assurance/quality control ("QA/QC") protocols that will be used to achieve the desired Data Quality Objectives ("DQOs"). The QAPP shall be prepared in accordance with this SOW, Settlement Agreement and

applicable EPA guidance, including, but not limited too, the Uniform Federal Policy for Implementing Quality Systems ("UFP-QS"), EPA-505-F-03-001, March 2005 or newer, Uniform Federal Policy for Quality Assurance Project Plans ("UFP-QAPP"), Parts 1, 2 and 3, EPA-505-B-04-900A, B and C, March 2005 or newer, and other documents referenced in the aforementioned guidance documents. The Uniform Federal Policy ("UFP") documents are found at:  
[http://www.epa.gov/fedfac/pdf/ufp\\_v2\\_final.pdf](http://www.epa.gov/fedfac/pdf/ufp_v2_final.pdf)

In addition, the guidance and procedures located in the EPA Region 2 DESA/HWSB web site: <http://www.epa.gov/region02/qa/documents.htm>, as well as other OSWER directives and EPA Region 2 policies should be followed, as appropriate. Subsequent amendments to the above, upon notification by EPA to Respondents of such amendments, shall apply only to procedures conducted after such notification.

I. The QAPP shall include the following elements:

- a. An explanation of the way(s) the sampling, analysis, testing, and monitoring will produce data for the RI/FS phase;
  - b. A detailed description of the sampling, analysis, and testing to be performed, including sampling methods, analytical and testing methods, sampling locations and frequency of sampling;
  - c. A map depicting sampling locations (subject to on-going revision pending the iterative results of field sampling and analysis); and
  - d. A schedule for performance of specific tasks.
- ii. In the event that additional sampling locations, testing, and analyses are utilized or required, the Respondents shall submit to EPA an addendum to the QAPP for approval by EPA.
- iii. The QAPP shall also address the following UFP elements:
- a. Title and Approval Page
  - b. QAPP Identifying Information
  - c. Distribution List
  - d. Project Personnel Sign-Off Sheet
  - e. Project Organizational Chart
  - f. Communication Pathway

- g. Personnel Responsibilities and Qualifications Table
- h. Special Personnel Training Requirements Table
- I. Project Scoping Session Participants Sheet
- j. Problem Definition
- k. Project Quality Objectives/ Systematic Planning Process Statements
- l. Measurement Performance Criteria Table
- m. Secondary Data Criteria and Limitations Table
- n. Summary of Project Tasks
- o. Reference Limits and Evaluation Table
- p. Project Schedule/Timeline Table
- q. Sampling Design and Rationale
- r. Sampling Locations and Methods/SOP Requirements Table
- s. Analytical SOP Requirements Table
- t. Field Quality Control Sample Summary Table
- u. Project Sampling SOP Reference Table
- v. Field Equipment Calibration, Maintenance, Testing and Inspection Table
- w. Analytical SOP Reference Table
- x. Analytical Instrument Calibration Table
- y. Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table
- z. Sampling Handling System
- aa. Sampling Custody Requirements
- bb. QC Samples Table
- cc. Project Documents and Records Table
- dd. Analytical Services Table
- ee. Planned Project Assessment Table
- ff. Assessment Findings and Response Table
- gg. QA Management Reports Table
- hh. Sampling and Analysis Verification (Step I) Process Table
- ii. Sampling and Analysis Validation (Step IIa and IIb) Process Table
- jj. Sampling and Analysis Validation (Step IIa and IIb) Summary Table
- kk. Data Usability Assessment

- iv. In order to provide quality assurance and maintain quality control with respect to all samples to be collected, the Respondents shall ensure the following:
  - a. Quality assurance and chain-of-custody procedures shall be performed in accordance with standard EPA protocol and guidance, including the approved QAPP, and any updates thereto, and the guidelines set forth in this Settlement

Agreement.

- b. Once laboratories have been chosen, each laboratory's quality assurance plan ("LQAP") should be submitted to EPA for review and approval. In addition, the laboratory should submit to EPA current copies (within the past six months) of laboratory certification provided from either a State or Federal Agency which conducts certification. The certification should be applicable to the matrix/analyses which are to be conducted. If the lab does not participate in the Contract Laboratory Program ("CLP"), they must submit to EPA the results of Performance Evaluation ("PE") samples for the constituents of concern from within the past six months or they must complete PEs for the matrices/analyses to be conducted and results must be submitted with the LQAP.

For any analytical work performed, including that done in a fixed laboratory, in a mobile laboratory, or in on-site screening analyses, the Respondents shall submit to EPA a "Non-CLP Superfund Analytical Services Tracking System" form for each laboratory utilized during a sampling event, within *thirty (30) days* after acceptance of the analytical results. Upon completion, such documents shall be submitted to the EPA Project Manager, with a copy of the form and transmittal letter to:

Regional Sample Control Center Coordinator  
U.S. EPA Region 2  
Division of Environmental Science & Assessment  
2890 Woodbridge Avenue, Bldg. 209, MS-215  
Edison, NJ 08837

- c. The laboratory utilized for analyses of samples must perform all analyses according to the accepted EPA methods.
- d. Unless otherwise indicated in the approved QAPP, upon receipt from the laboratory, all supplemental data shall be validated.
- e. Submission of the validation package (checklist, report and Form I5 containing the final data) to EPA, prepared in accordance with the provisions of Subparagraph g., below.

- f. Assurance that all analytical data that are validated as required by the QAPP are validated in accordance with the latest version of the Region 2 Data Validation Standard Operating Procedures which can be found at:  
<http://www.epa.gov/region02/qa/documents.htm>
- g. Unless indicated otherwise in the QAPP, the Respondents shall require deliverables equivalent to CLP data packages from the laboratory for analytical data. Upon EPA's request, the Respondents shall submit to EPA the full documentation (including raw data) for this analytical data. EPA reserves the right to perform an independent data validation, data validation check, or qualification check on generated data.
- h. In their contract(s) with the laboratory utilized for analyses of samples, the Respondents shall insert a provision which will require granting access to EPA personnel and/or authorized representatives of the EPA for the purpose of ensuring the accuracy of laboratory results related to the Site.
- I. Document Field Activities: The Respondents shall consistently document the quality and validity of field and laboratory data compiled during the work. Information gathered during the remedial action at the Site will be consistently documented and adequately recorded by the Respondents in well maintained field logs and laboratory reports. The method(s) of documentation must be specified in the Work Plan and QAPP. Field logs or dedicated field log-books must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

- C. A Health and Safety Plan ("HSP") for all activities performed under this SOW and Settlement Agreement shall be prepared by the Respondents to address the protection of public health and safety and the response to contingencies that could impact public health, safety, and the environment. The HSP shall conform to 29 C.F.R. §1910.120, "OSHA Hazardous Waste Operations Standards," and the EPA guidance document, "Standard Operating Safety Guidelines," (OSWER, 1988) and any updates thereto.

7. Following approval or modification by EPA, the Work Plan shall be deemed to be incorporated into this Settlement Agreement by reference.

## **TASK II - COMMUNITY RELATIONS**

EPA will prepare a community relations plan, in accordance with EPA guidance and the National Contingency Plan. As requested by EPA, the Respondents and their representations shall provide information supporting EPA's community relations plan and shall participate in the preparation of such information for dissemination to the public and in public meetings which may be held or sponsored by EPA to explain activities at or concerning the Site.

## **TASK III - SITE CHARACTERIZATION (RI/FS Guidance, Chapter 3)**

The Respondents shall perform the activities described in this task including the preparation of a site characterization report. The overall objective of site characterization is to describe areas of the Site that may pose a threat to human health or the environment. This is accomplished by determining the Site's physiography, geology, and hydrology, and defining the surface and subsurface pathways of migration. The Respondents shall also identify the sources of contamination and define the nature, extent, and volume of the sources of contamination, including their physical and chemical constituents as well as their concentrations at incremental locations to background in the affected media.

1. Within *ten (10) days* after EPA's written approval or modification of the RI/FS Work Plan, the Respondents shall implement the provisions of the RI/FS Work Plan to characterize the nature and extent of hazardous substances, pollutants, or contaminants in connection with the Site. Since unknown conditions may exist, activities can be iterative, so to satisfy the objectives of the RI/FS, it may be necessary for the Respondents to modify the work specified in the initial work plan. Any modification of the RI/FS Work Plan is subject to EPA approval.

2. The Respondents shall provide monthly progress reports and participate in meetings with EPA at major milestones in the RI/FS process.

3. The EPA-approved QAPP and HSP shall be implemented by the Respondents when gathering any supplemental data. The Respondents must demonstrate that the laboratory and method of analyses that will be utilized during characterization of the Site shall meet the specific QA/QC requirements and the DQOs of the Site's investigation as specified in the QAPP.

4. The Respondents shall conduct field investigation activities which includes the gathering of supplemental data to be used in conjunction with existing data to define the Site's physical and biological characteristics, sources of contamination, and the nature and extent of contamination at the Site.

### **A. Field Investigation (3.2)**

The Respondents shall notify EPA at least *fourteen (14) days* in advance of each separate field activity so that EPA may adequately schedule oversight tasks. The Respondents shall also advise EPA in writing within *seven (7) days* after completing each separate field activity. Within *thirty (30) days* after each field sampling activity, the Respondents shall provide EPA with validated analytical data in the electronic format required by EPA at the time of submission, showing the location, medium and results.

The field investigation activities shall be performed by the Respondents in accordance with the RI/FS Work Plan and QAPP. At a minimum, this shall address the following:

I. Implement and Document Field Support Activities (3.2.1)

Respondents shall initiate field support activities following approval of the RI/FS Work Plan and QAPP. Field support activities may include scheduling, and procuring equipment, office space, laboratory services, and/or contractors. The Respondents may initiate other time-critical field support activities, such as obtaining access to the Site, prior to approval of the RI/FS work plan and QAPP.

ii. Investigate and Define Site Physical and Biological Characteristics (3.2.2)

The Respondents shall utilize existing data and collect supplemental data, if required, on the physical and biological characteristics of the Site and its surrounding areas including the physical physiography, geology, and hydrology, and specific physical characteristics identified in the work plan. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts and will be utilized to define potential transport pathways and human and ecological receptor populations. In defining the physical characteristics of the Site, the Respondents shall also obtain sufficient engineering data (such as pumping characteristics) for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies.

iii. Define Sources of Contamination (3.2.3)

The Respondents shall utilize all existing data (from their facilities) and collect supplemental data, if required. For each

facility, as well as any other sources identified by the Respondents, the areal extent and depth of contamination shall be determined. The physical characteristics and chemical constituents and their concentrations will be determined for all known and discovered sources of contamination. The Respondents shall document that sufficient sampling data exists to define the boundaries of the contaminant sources to the level established in the QAPP and DQOs.

Defining the source of contamination will include providing information on the evaluation of the potential for contaminant release (e.g., long term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information to assess treatment technologies.

iv. Describe the Nature and Extent of Contamination (3.2.4)

The Respondents shall summarize the data gathered as it relates to the nature and extent of contamination as a final step during the field investigation. To describe the nature and extent of contamination, the Respondents shall utilize the information on the Site's physical and biological characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. The Respondents shall then implement an iterative monitoring program and any study program identified in the RI/FS Work Plan (which includes the QAPP) such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at the Site can be determined. In addition, the Respondents shall compile sufficient data for calculating contaminant fate and transport. This process shall continue until the area and depth of contamination are known to the level established in the QAPP and DQOs.

Respondents shall use the information on the nature and extent of contamination to determine the level of risk presented by the Site in consultation with EPA. Respondents shall use this information to help to determine aspects of the appropriate remedial action alternatives to be evaluated.

B. Data Analysis (3.4)

#### Evaluate Site Characteristics (3.4.1)

The Respondents shall analyze and evaluate all available existing data, and any supplemental data collected to describe: (1) physical and biological characteristics at the Site, (2) contaminant source characteristics, (3) nature and extent of contamination and (4) contaminant fate and transport. Results of the Site's physical characteristics, source characteristics, and extent of contamination analyses are utilized in the analysis of contaminant fate and transport. The evaluation will include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is appropriate, such models shall be identified to EPA in a technical memorandum prior to their use. All data and programming, including any proprietary programs, shall be made available to EPA together with a sensitivity analysis. The Respondents shall agree to discuss any data gaps identified by the EPA and then collect data that is necessary to complete the baseline risk assessment. (See "Guidance for Data Useability in Risk Assessment" - Publication # 9285.7-09A, April 1992.) Also, this evaluation shall include any information relevant to characteristics of the Site necessary for evaluation in the baseline risk assessment of the need for remedial action and for the development and evaluation of remedial alternatives. (See Risk Evaluation of Remedial Alternatives (Part C) - OSWER Directive 9285.7-01C, December 1991.) Analysis of data collected for characterization of the Site will meet the DQOs developed in the QAPP (or revised during the RI).

#### C. Data Management Procedures (3.5)

The Respondents shall consistently document the quality and validity of field and laboratory data compiled during the RI.

##### I. Document Field Activities (3.5.1)

Any supplemental data gathered during characterization of the Site shall be consistently documented and adequately recorded by the Respondents in well maintained field logs and laboratory reports. The method(s) of documentation must be specified in the work plan and QAPP. Field logs or dedicated field log-books must be utilized to document observations, measurements, and significant events that occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

ii. Maintain Sample Management and Tracking (3.5.2; 3.5.3.)

For supplemental data, if required, Respondents shall maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that the supplemental data with validated analytical results are used in conjunction with historic results. The data will be reported and utilized in the evaluation of remedial alternatives. Supplemental analytical results developed under the work plan will not be included in the site characterization reports for the Site unless accompanied by, or cross-referenced to, a corresponding QA/QC report. In addition, the Respondents shall establish a data security system to safeguard chain-of-custody forms and other project records to prevent loss, damage, or alteration of project documentation.

D. Preliminary Site Characterization Summary (3.6.2)

- I. After reviewing existing data and the completion of supplemental field sampling and analysis, if required, and within *thirty (30) days* after submission to EPA of the final set of validated field data, the Respondents shall submit to EPA the Site Characterization Summary Report. This report will review the investigative activities that have taken place, and describe and display data from the Site documenting the location and characteristics of surface and subsurface features and contamination at the Site including the affected medium, location, physical state, concentration of contaminants and quantity. In addition, location, dimensions, physical condition and varying concentrations of each contaminant throughout each source and the extent of contaminant migration through each of the affected media will be documented. The Site Characterization Summary Report will provide EPA with a preliminary reference for the development of the risk assessment, the evaluation and screening of remedial alternatives and the refinement and identification of ARARs.
- ii. Within *fourteen (14) days* after submitting to EPA the Site Characterization Summary Report, the Respondents shall make a presentation to EPA on the findings of the Site Characterization Summary Report and discuss EPA's preliminary comments and concerns associated with this Site Characterization Summary Report. If EPA disapproves or requires revisions to the Site Characterization Summary Report, in whole or in part, the Respondents shall amend and submit to EPA a revised Site Characterization Summary Report which addresses all of EPA comments within *fourteen (14) days* after receipt of EPA's written

comments.

#### **TASK IV - IDENTIFICATION OF CANDIDATE TECHNOLOGIES (4.2)**

An Identification of Candidate Technologies Memorandum shall be submitted by the Respondents within *thirty (30) days* after Respondents' submission to the EPA of the last set of validated analytical results. The candidate technologies identified shall include innovative treatment technologies (as defined in the RI/FS Guidance) where appropriate. The listing of candidate technologies will cover the range of technologies required for alternatives analysis (Task 8.2). If EPA disapproves of or requires revisions to the technical memorandum identifying candidate technologies, in whole or in part, the Respondents shall amend and submit to EPA a revised technical memorandum identifying candidate technologies which addresses all of EPA comments, within *fourteen (14) days* after receiving EPA's written comments.

#### **TASK V - TREATABILITY STUDIES; IF NECESSARY**

If necessary, treatability testing shall be performed by the Respondents, at EPA's request, to assist in the detailed analysis of alternatives. In addition, if applicable, testing results and operating conditions will be used in the detailed design of the selected remedial technology. The following activities will be performed by the Respondents.

1. Conduct Literature Survey and Determine the Need For Treatability Testing (4.2.2)

The Respondents shall conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated, for this Site on the basis of available information, treatability testing will be conducted. Where it is determined by EPA that treatability testing is required, and unless the Respondents can demonstrate to EPA's satisfaction that they are not needed, the Respondents shall submit a Statement of Work to EPA outlining the steps and data necessary to evaluate and initiate the treatability testing program.

2. Evaluate Treatability Studies (4.2.3)

Once a decision has been made to perform treatability studies, the Respondents and EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing should be made as early in the process as possible to minimize potential delays of the FS. To assure that a treatability testing

program is completed on time, and with accurate results, the Respondents shall either submit a separate treatability testing work plan or an amendment to the original site work plan for the Site for EPA review and approval.

3. Treatability Testing and Deliverables (4.3)

The deliverables that will be required if treatability testing is conducted, in addition to the memorandum identifying candidate technologies, shall include a treatability testing statement of work, a work plan, a sampling and analysis plan, and a final treatability evaluation report. EPA may also require a treatability study health and safety plan, where appropriate.

If EPA determines that treatability testing is required and so notifies the Respondent in writing, the Respondents shall, within *twenty-one (21) days* thereafter, submit to EPA a Treatability Testing Statement of Work. If EPA disapproves of or requires revisions to the Treatability Testing Statement of Work, in whole or in part, the Respondents shall amend and submit to EPA a revised Treatability Testing Statement of Work which is responsive to the directions in all EPA comments, within *fourteen (14) days* after receiving EPA's comments.

4. Treatability Testing Work Plan (4.3.2)

Within *thirty (30) days* after submission of the Treatability Testing Statement of Work, the Respondents shall submit a Treatability Testing Work Plan, including a schedule. Upon its approval by EPA, said schedule shall be deemed incorporated into this Settlement Agreement by reference. If EPA disapproves of or requires revisions to the Treatability Testing Work Plan, in whole or in part, the Respondents shall amend and submit to EPA a revised Treatability Testing Work Plan which is responsive to the directions in all EPA comments, within *fourteen (14) days* after receiving EPA's comments.

The Respondents shall prepare a treatability testing work plan or amendment to the original site work plan for the Site for EPA review and approval describing the background of the Site, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for treatability testing should be documented as well. If pilot scale treatability testing is to be performed, the pilot-scale work plan will describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-site for the Site, the Respondents shall address all necessary permitting requirements to the satisfaction of appropriate authorities.

5.     Treatability Study QAPP (4.3.3)

Within *thirty (30) days* after the identification by EPA of the need for a separate or revised QAPP, and HSP, the Respondents shall submit to EPA a revised QAPP and HSP as appropriate. If EPA disapproves of or requires revisions to the revised QAPP and HSP, in whole or in part, the Respondents shall amend and submit to EPA a revised treatability study QAPP and HSP, which is responsive to the directions in all EPA comments, within *fourteen (14) days* after receiving EPA's comments.

If the original QAPP is not adequate for defining the activities to be performed during the treatability test, a separate treatability study QAPP or amendment to the original QAPP for the Site will be prepared by the Respondents for EPA review and approval. Task 1 of this Statement of Work provides additional information on the requirements of the QAPP.

6.     Treatability Study HSP (4.3.4)

If the original HSP is not adequate for defining the activities to be performed during the treatment tests, a separate or amended HSP will be developed by the Respondents. Task 1 of this statement of work provides additional information on the requirements of the HSP. EPA does not "approve" the treatability study HSP.

7.     Treatability Study Evaluation Report (4.3.5)

Within *thirty (30) days* after completion of any treatability testing, the Respondents shall submit a Treatability Study Evaluation Report to EPA. If EPA disapproves of or requires revisions to the Treatability Study Evaluation Report, in whole or in part, the Respondents shall amend and submit to EPA a revised Treatability Study Evaluation Report which is responsive to the directions in all EPA comments, within *fourteen (14) days* after receiving EPA's comments.

Following completion of treatability testing, the Respondents shall analyze and interpret the testing results in a technical report to EPA. Depending on the sequences of activities, this report may be a part of the RI/FS report or a separate deliverable. The report will evaluate each technology's effectiveness, implementability, cost and actual results as compared with predicted results. The report will also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

## **TASK VI - BASELINE RISK ASSESSMENT**

The Respondents shall prepare a Baseline Risk Assessment ("BRA") for the Site which shall be incorporated into the RI. The BRA shall comply with the Risk Assessment Guidance for Superfund ("RAGS") and any other relevant guidance and Agency policies regarding risk assessment. The Respondent shall provide EPA with the following deliverables:

1. Baseline Human Health Risk Assessment

- A. Actual and potential cancer risks and non-cancer hazards to human health shall be identified and characterized in accordance with CERCLA, the NCP, and EPA guidance including, but not limited to, the RI/FS Guidance, "Land Use in the CERCLA Remedy Selection Process" (OSWER Directive No. 9355.7-04) and the definitions and provisions of "Risk Assessment Guidance for Superfund ("RAGS")," Volume 1, "Human Health Evaluation Manual," (December 1989) (EPA/540/1-89/002). Other EPA guidance to be used in the development of risk assessments is provided in Attachment A, as well as on the Superfund risk assessment web page ([http://www.epa.gov/oswer/riskassessment/risk\\_superfund.htm](http://www.epa.gov/oswer/riskassessment/risk_superfund.htm)).
- B. Representative contaminants and associated concentrations in media including groundwater, soil, sediment, and surface water for the Baseline Human Health Risk Assessment ("BHHRA") shall be determined utilizing all current and historically available media-specific analytical data generated during the RI/FS.
- C. Memorandum on Exposure Scenarios and Assumptions. Within *thirty (30) days* after approval of the RI/FS Work Plan, the Respondents shall submit a memorandum describing the exposure scenarios and assumptions, taking into account for the BHHRA the present and reasonably anticipated future land use of the Site. The memorandum should include appropriate text describing the conceptual site model and exposure routes of concern for the Site, and include a completed RAGS Part D Table 1. This table shall describe the pathways that will be evaluated in the BHHRA, the rationale for their selection, and a description of those pathways that will not be evaluated. In addition, the Memorandum shall include a completed RAGS Part D Table 4 describing the exposure pathway parameters with appropriate references to EPA's 1991 Standard Default Assumptions and updated guidance developed by EPA. If EPA disapproves, or requires revisions to, the memorandum, in whole or in part, such disapproval or required revisions shall be provided in writing with reasons for the disapproval or directions for revisions to make the submittal approvable. The Respondents shall amend and submit to EPA a revised memorandum that is responsive to the directions in all EPA comments, within *fourteen (14) days* after receiving EPA's comments.

- D. Pathway Analysis Report. The Respondents shall prepare and submit a Pathways Analysis Report ("PAR") within *thirty (30) days* after receipt of the last set of validated data. The PAR shall be developed in accordance with guidance dated December 2001, entitled, "Risk Assessment Guidelines for Superfund Part D" and other appropriate guidance in Attachment A and updated thereto. The PAR shall contain all the information necessary for a reviewer to understand how the risks at the Site will be assessed. The PAR will build on the Memorandum on Exposure Scenarios and Assumptions (see C above) describing the risk assessment process and how the risk assessment will be prepared. The PAR shall include completed RAGS Part D Tables 2, 3, 5, and 6 as described below as well as the accompanying explanatory text. The PAR must be reviewed and approved by EPA prior to the submission of the draft BHHRA.

If EPA disapproves, or requires revisions to, the PAR, in whole or in part, the Respondents shall amend and submit to EPA a revised PAR that is responsive to the directions in all of EPA's written comments within *fourteen (14) days* after receipt of EPA's comments.

- E. Chemicals of Potential Concern. The PAR shall contain all the information necessary for a reviewer to understand how the risks at the Site will be evaluated.
- I. Based on the results of the Site Characterization Summary Report the Respondents shall list the hazardous substances present in all sampled media (e.g., soils, sediment, groundwater, etc.) and the chemicals of potential concern ("COPCs") as described in RAGS Part A.
  - ii. Table 2 - Selection of COPCs. Representative chemicals and associated concentrations in sample media for the PAR shall be determined utilizing all currently available media-specific validated analytical data generated during the RI/FS. The selection of COPCs shall follow RAGS Part A with all known human carcinogens (Group A) included. Before chemicals are deleted as COPCs they shall be evaluated against the residential PRGs from Region IX using the concentration associated with a screening risk level of  $1 \times 10^{-6}$  (one in a million) for carcinogens and an HI of 0.1 for non-carcinogens. The COPCs shall be presented in completed RAGS Part D Table 2 format.
  - iii. Table 3 - Media Specific Exposure Point Concentrations. Using the chemicals selected in Table 2, this Table shall summarize the Exposure Point Concentrations for all COPCs for the various

media. The calculation of the Exposure Point Concentration shall follow the latest guidance on the calculation of the 95% Upper Confidence Limit ("UCL") on the mean (USEPA, 2002, Calculating Upper Confidence Limits or Exposure Point Concentrations at Hazardous Waste Sites, OSWER 9285.6-10).

- iv. Tables 5 and 6 - Toxicological Information. This section of the PAR shall provide the toxicological data (e.g., Cancer Slope Factors, Reference Doses, Reference Concentrations, Weight of Evidence for Carcinogens, and adjusted dermal toxicological factors where appropriate) for the COPCs. The toxicological data shall be presented in completed RAGS Part D Tables 5 and 6. The toxicity hierarchy is outlined in EPA's 2003 memorandum titled "Human Health Toxicity Values in Superfund Risk Assessments" (OSWER Directive 9285.7-53). The source of data in order of priority are: Tier 1 - EPA's Integrated Risk Information System (IRIS), Tier 2 - Provisional Peer-Reviewed Toxicity Values, and Tier 3 - other toxicity values with review by EPA's Superfund Technical Support Center. To facilitate a timely completion of the PAR, the Respondents shall submit a list of chemicals for which IRIS values are not available to EPA as soon as identified thus allowing EPA to facilitate obtaining toxicity information from EPA's National Center for Environmental Assessment, Superfund Technical Support Center.

- F. Baseline Human Health Risk Assessment of the RI Report. Within *thirty (30) days* after EPA's approval of the PAR, the Respondents shall submit to EPA a Draft BHHRA for review and approval. The submittal shall include completed RAGS Part D Tables 7 through 10 summarizing the calculated cancer risks and non-cancer hazards and appropriate text in the risk characterization with a discussion of uncertainties and critical assumptions (e.g., background concentrations and conditions). The Respondents shall perform the BHHRA in accordance with the approach and parameters described in the approved Memorandum of Exposure Scenarios and Assumptions and the PAR described above. Text and tables from these previously approved reports shall be included in the appropriate sections of the BHHRA.

If EPA disapproves or requires revisions to the BHHRA, in whole or in part, such disapproval or required revision shall be provided in writing with reasons for the disapproval or directions for revisions to make the submittal approvable. Respondents shall amend and submit to EPA a revised report that is responsive to the directions in all EPA comments, within *fourteen (14) days* after receiving EPA's comments. The approved BHHRA shall be incorporated into the RI report.

2. Baseline Ecological Risk Assessment

- A. Within *forty-five (45) days* after receipt of the last set of validated data, the Respondents shall submit a Screening-Level Ecological Risk Assessment ("SLERA") in accordance with CERCLA, the NCP, and EPA guidances including, but not limited to, "Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments," ERAGS, [EPA/540-R-97-006] OSWER Directive 9285.7-25, June 1997 (or most recent guidance). The SLERA shall include a comparison of the maximum contaminant concentrations in each media of concern to appropriate conservative ecotoxicity screening values, and should use conservative exposure estimates. EPA will review the SLERA and determine whether a full Baseline Ecological Risk Assessment ("BERA") is required.

If EPA disapproves or requires revisions to the SLERA, in whole or in part, such disapproval or required revisions shall be provided in writing with reasons for the disapproval or directions for revisions to make the submittal approvable. The Respondents shall amend and submit to EPA a revised SLERA that is responsive to the directions in all EPA comments, within *fourteen (14) days* after receiving EPA's comments.

- B. If EPA determines that a BERA is required, and so notifies the Respondents in writing, the Respondents shall, within *thirty (30) days* thereafter, submit a Scope of Work outlining the steps and data necessary to perform the BERA, including any amendments to the RI/FS Work Plan required to collect additional relevant data. If EPA disapproves, or requires revisions to, the BERA Scope of Work, in whole or in part, the Respondents shall amend and submit to EPA a revised BERA Scope of Work that is responsive to the directions in all of EPA's written comments within *fourteen (14) days* after receipt of EPA's comments. The BERA Scope of Work shall identify any RI/FS Work Plan amendments or addenda, including establishment of a schedule for review and approval of additional field work.
- C. If EPA determines that a BERA is required, the Respondents shall notify EPA in writing within *seven (7) days* after completion of all field activities associated with the BERA, as identified in the BERA Scope of Work and performed under the approved RI/FS Work Plan addenda. Within *thirty (30) days* after completion of the final set of BERA-related validated data, the Respondents shall submit a draft Baseline Ecological Risk Assessment Report to EPA. Actual and potential ecological risks shall be identified and characterized in accordance with CERCLA, the NCP, and EPA guidances including, but not limited to, "Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting

Ecological Risk Assessments," ERAGS, (EPA/540-R-97-006), dated June 5, 1997 (or most recent guidance). The Respondents shall submit to EPA a baseline ecological assessment section for inclusion in the RI Report. If EPA disapproves, or requires revisions to, the updated ecological assessment, in whole or in part, the Respondents shall amend and submit to EPA a final, updated ecological assessment that is responsive to the directions in all EPA's written comments within *fourteen (14) days* after receipt of EPA's written comments.

The Respondents shall evaluate and assess the risk to the environment posed by site contaminants. As part of this subtask, the Respondents shall perform the following activities:

- I. Draft Baseline Ecological Risk Assessment Report. The Respondents shall prepare a draft Ecological Risk Assessment Report that addresses the following:
  - a. Hazard Identification (sources). The Respondents shall review available information on the hazardous substances present at the site and identify the major contaminants of concern.
  - b. Dose-Response Assessment. The Respondents shall identify and select contaminants of concern based on their intrinsic toxicological properties.
  - c. Characterization of Site and Potential Receptors. The Respondents shall identify and characterize environmental exposure pathways.
  - d. Select Chemicals, Indicator Species, and End Points. In preparing the assessment, the Respondents shall select representative chemicals, measurement endpoints on which to concentrate, and assessment endpoints (indicator species (species which are especially sensitive to environmental contaminants)).
  - e. Exposure Assessment. The exposure assessment shall identify the magnitude of actual or environmental exposures, the frequency and duration of these exposures, and the routes by which receptors are exposed. The exposure assessment shall include an evaluation of the likelihood of such exposures occurring and shall provide the basis for the development of acceptable exposure levels.

- f. Toxicity Assessment/Ecological Effects Assessment. The toxicity and ecological effects assessment shall address the types of adverse environmental effects associated with chemical exposures, the relationships between magnitude of exposures and adverse effects, and the related uncertainties for contaminant toxicity.
  - g. Risk Characterization. During risk characterization, chemical-specific toxicity information, combined with quantitative and qualitative information from the exposure assessment, shall be compared to measured levels of contaminant exposure levels and the levels predicted through environmental fate and transport modeling. These comparisons shall determine whether concentrations of contaminants at or near the Site are affecting or could potentially affect the environment.
  - h. Identification of Limitations/ Uncertainties. The Respondents shall identify critical assumptions (e.g., background concentrations and conditions) and uncertainties in the report.
  - I. Site Conceptual Model. Based on contaminant identification, exposure assessment, toxicity assessment, and risk characterization, the Respondents shall develop a conceptual model of the Site.
- ii. Final Baseline Ecological Risk Assessment Report. Within *thirty (30) days* after receiving EPA's comments on the Draft Ecological Assessment Report, the Respondents shall amend and submit to EPA a final report which is responsive to the directions in all EPA comments.

## **TASK VII - REMEDIAL INVESTIGATION REPORT**

Within *thirty (30) days* after EPA's approval of the Baseline Risk Assessments, the Respondents shall prepare a Remedial Investigation ("RI") report that accurately establishes the site characteristics such as the contaminated media, extent of contamination, and the physical boundaries of the contamination. This report shall summarize existing data and the results of any supplemental data gathered to characterize the Site, sources of contamination, and the fate and transport of contaminants. Pursuant to this objective, the Respondents shall obtain only the minimum essential amount of detailed data necessary to determine the chemicals of concern movement and extent of contamination. The chemicals of concern must be selected based on persistence and mobility in the environment and the degree of hazard. The Respondents shall use

existing standards and guidelines and other criteria accepted by EPA as appropriate for the situation that will be used to evaluate effects on human receptors who may be exposed to the chemicals of concern above appropriate standards or guidelines.

The RI report shall be written in accordance with the "Guidance for Conducting Remedial Investigations/Feasibility Studies under CERCLA," OSWER Directive 9355.3-01, October 1988, Interim Final (or latest revision) and "Guidance for Data Usability in Risk Assessment," (EPA/540/G-90/008), September 1990 (or latest revision) and consistent with the "Region II RI Report Guidelines."

The Respondents shall refer to the RI/FS Guidance for an outline of the report format and contents. Following comment by EPA, the Respondents shall prepare a final RI report which satisfactorily addresses EPA's comments.

1. Draft Remedial Investigation Report

In accordance with the schedule in the approved RI/FS work plan, the Respondents shall submit a draft RI report that is consistent with the "Region II RI Report Guidelines."

2. Final Remedial Investigation Report

Within *thirty (30) days* after receiving EPA's comments on the Draft RI Report, the Respondents shall amend and submit to EPA a final report which is responsive to the directions in all EPA comments.

## **TASK VIII - DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES**

Concurrent with the RI site characterization task, the Respondents shall develop and evaluate a range of appropriate waste management options that at a minimum ensure protection of human health and the environment. The development and screening of remedial alternatives shall include an appropriate range of waste management options that will be evaluated. This range of alternatives should include options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The following activities will be performed as a function of the development and screening of remedial alternatives.

1. Development and Screening of Remedial Alternatives (5.2)

The Respondents will begin to develop and evaluate a range of appropriate waste management options that at a minimum ensure protection of human health and the environment, concurrent with the RI site characterization task.

A. Develop General Response Actions (5.2.2)

The Respondents will develop general actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

B. Identify Areas or Volumes of Media (5.2.3)

The Respondents will identify areas or volumes of media to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of the Site will also be taken into account.

C. Assemble and document alternatives (5.2.6)

The Respondents will assemble selected representative technologies into alternatives for each affected medium or operable unit. Together, all of the alternatives will represent a range of treatment and containment combinations that will address either the Site or the operable unit(s) as a whole. A summary of the assembled alternatives and their related action-specific ARARs will be prepared by the Respondents for inclusion in a technical memorandum. The reasons for eliminating alternatives during the preliminary screening process must be specified.

D. Refine alternatives (5.2.7)

The Respondents will refine the remedial alternatives to identify contaminant volume addressed by the proposed process and sizing of critical unit operations as necessary. Sufficient information will be collected for an adequate comparison of alternatives. PRGs for each chemical in each medium will also be modified as necessary to incorporate any new risk assessment information presented in the Baseline Risk Assessment report. Additionally, action-specific ARARs will be updated as the remedial alternatives are refined.

E. Conduct and Document Screening Evaluation of Each Alternative (5.2.8)

The Respondents may perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If necessary, the screening of alternatives will be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve

the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable.

2. Development and Screening of Alternatives Deliverables (5.3)

Within *thirty (30) days* after EPA's approval of the Baseline Risk Assessment, or within *thirty (30) days* after EPA's approval of the Respondents Treatability Study Evaluation report (if treatability studies are undertaken), whichever is later, the Respondents shall: (1) make a presentation to EPA identifying the remedial action objectives and summarizing the development and preliminary screening of remedial alternatives, and (2) prepare and submit a Development and Screening of Remedial Alternatives technical memorandum summarizing the work performed in, and the results of, each task above, including an alternatives array summary. The memorandum shall also summarize the reasoning employed in screening, arraying alternatives that remain after screening, and identifying the action-specific ARARs for the alternatives that remain after screening. If EPA disapproves of or requires revisions to the Development and Screening of Remedial Alternatives technical memorandum, the Respondents shall amend and submit to EPA a revised memorandum which is responsive to the directions in all EPA comments, within *fourteen (14) days* after receiving EPA's comments. If required by EPA's comments, these remaining alternatives will be modified by the Respondents to assure that a complete and appropriate range of viable alternatives are identified and considered in the detailed analysis. This deliverable will document the methods, rationale, and results of the alternatives screening process.

3. Detailed Analysis of Remedial Alternatives

The detailed analysis will be conducted by the Respondents to provide EPA with the information needed to allow for the selection of a remedy for the Site. This analysis is the final task to be performed by the Respondents during the FS.

A. Detailed Analysis of Alternatives (6.2)

The Respondents shall conduct a detailed analysis of alternatives which will consist of an analysis of each option against a set of nine evaluation criteria and a comparative analysis of all options using the same evaluation criteria as a basis for comparison.

B. Apply Nine Criteria and Document Analysis (6.2.1-6.2.4)

The Respondents shall apply nine evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will

be protective of human health and the environment; will be in compliance with, or include a waiver of, ARARS; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment; (2) compliance with ARARS; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance.

(Note: criteria 8 and 9 are considered after the RI/FS Report has been released to the general public). For each alternative, the Respondents should provide: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARS associated with each alternative, and (2) a discussion of the individual criterion assessment. If the Respondents do not have direct input on criteria (8) state (or support agency) acceptance and (9) community acceptance, these will be addressed by EPA.

C. Compare Alternatives Against Each Other and Document the Comparison of Alternatives (6.2.5; 6.2.6)

The Respondents shall perform a comparative analysis between the remedial alternatives. That is, each alternative will be compared against the others using the evaluation criteria as a basis of comparison. Identification and selection of the preferred alternative are reserved by EPA. The Respondents shall prepare a technical memorandum summarizing the results of the comparative analysis.

D. Detailed Analysis Deliverables (6.3)

The Respondents shall submit a draft FS report to EPA for review and approval.

## **TASK IX - FEASIBILITY STUDY REPORT (6.4)**

The Respondents shall prepare a Feasibility Study (FS) Report consisting of a detailed analysis of alternatives and a cost-effectiveness analysis, in accordance with the National Contingency Plan (NCP), 40 CFR Part 300, as well as the most recent guidance. Within *forty-five (45) days* after the Task VIII presentation to EPA, the Respondents shall submit to EPA a Draft FS report which reflects the findings in the approved Baseline Risk Assessment. The Respondents shall refer to the RI/FS Work Plan and the RI/FS Guidance and the SOW for report content and format. Within *fourteen (14) days* after submitting the draft FS report, the

Respondents shall make a presentation to EPA at which the Respondents shall summarize the findings of the draft FS report and discuss EPA's preliminary comments and concerns associated with the draft FS report. If EPA disapproves of or requires revisions to the draft FS report, in whole or in part, the Respondents shall amend and submit to EPA a revised draft FS report which is responsive to the directions in EPA's comments, within *twenty-one (21) days* after receiving EPA's written comments. Once EPA's comments have been addressed by the Respondents to EPA's satisfaction, the final FS report may be bound with the final RI report.

1. The FS report shall contain the following:

- A. Summary of Feasibility Study objectives
- B. Summary of remedial objectives
- C. Discussion of general response actions
- D. Identification and screening of remedial technologies
- E. Remedial alternatives description
- F. Detailed analysis of remedial alternatives
- G. Summary and conclusions

2. The Respondents technical feasibility considerations shall include the careful study of any problems that may prevent a remedial alternative from mitigating site problems. Therefore, the site characteristics from the RI must be kept in mind as the technical feasibility of the alternative is studied. Specific items to be addressed are reliability (operation over time), safety, operation and maintenance, ease with which the alternative can be implemented, and time needed for implementation.

## **ATTACHMENT A**

### **REFERENCES FOR CITATION**

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process:

The National Hazardous Substance and Oil Pollution Contingency Plan, 40 CFR 300 et seq.

"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01

"Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, Appendix A to OSWER Directive No. 9355.3-01.

"Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, OSWER Directive No. 9835.3.

"A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.

"EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, EPA-330/9-78-001-R.

"Data Quality Objectives for Remedial Response Activities," U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.

"Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.

"EPA Requirements for QAPPs for Environmental Data Operations," U.S. EPA, Office of Emergency and Remedial Response, QA/R-5, October 1998.

"Uniform Federal Policy for Implementing Quality Systems (UFP-QS)," EPA-505-F-03-001, March 2005.

"Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP), Parts 1, 2 and 3," EPA-505-B-04-900A, B and C, March 2005.

"Interim Guidelines and Specifications for Quality Assurance Project Plans," U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.

"Users Guide to the EPA Contract Laboratory," U.S. EPA, Sample Management Office, August 1982.

"Interim Guidance with Applicable or Relevant and Appropriate Requirements," U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.

"CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (draft), OSWER Directive No. 9234.1-01 and -02.

"Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S. EPA, Office of Emergency and Remedial Response, (draft), OSWER Directive No. 9283.1-2.

"Draft Guidance on Superfund Decision Documents," U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.-02

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual" (Part A), EPA/540/1-89/002

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual" (Part B), EPA/540/R-92/003.

"Risk Assessment Guidance for Superfund - Volume II Environmental Evaluation Manual," March 1989, EPA/540/1-89/001.

"Guidance for Data Useability in Risk Assessment," October, 1990, EPA/540/G-90/008.

"Performance of Risk Assessments in Remedial Investigation/ Feasibility Studies (RI/FSS) Conducted by Potentially Responsible Parties (PRPs)," August 28, 1990, OSWER Directive No.9835.15.

"Risk Evaluation of Remedial Alternatives" (Part C), December 1991, OSWER Directive 9285.7-01C.

"Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," April 22, 1991, OSWER Directive No. 9355.0-30.

"Supplemental Guidance to RAGS: Calculating the Concentration Term," May 1992, OSWER Directive 9285.7-081.

"Health and Safety Requirements Employed in Field Activities," U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.

OSHA Regulations in 29 CFR 1910.120 (Federal Register 45654, December 19, 1986).

"Interim Guidance on Administrative Records for Selection of CERCLA Response Actions," U.S. EPA, Office of Waste Programs Enforcement, March 1, 1989, OSWER Directive No. 9833.3A.

"Community Relations in Superfund: A Handbook," U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.03B.

"Community Relations During Enforcement Activities And Development of the Administrative Record," U.S. EPA, Office of Programs Enforcement, November 1988, OSWER Directive No. 9836.0-1a.

## **HUMAN HEALTH RISK ASSESSMENT GUIDANCE DOCUMENTS**

### **Superfund Risk Assessment Guidance**

USEPA, 1989, Risk Assessment Guidance for Superfund (RAGS); Volume I Human Health Evaluation Manual Part A. OERR. EPA/540/1-89/002. Available at:  
<http://www.epa.gov/oswer/riskassessment/ragsa/index.htm>

USEPA, 1990, Risk Assessment Guidance for Superfund (RAGS); Volume I, Human Health Evaluation Manual, (Part B, Development of Risk-Based Preliminary Remediation Goals) OSWER, EPA/540/R-92/003. Available at:  
<http://www.epa.gov/oswer/riskassessment/ragsb/index.htm>

USEPA, 1991. Risk Assessment Guidance for Superfund (RAGS); Volume I, Human Health Evaluation Manual (Part C, Risk Evaluation of Remedial Alternatives), OSWER Directive 9285.7-01C, December 1991. Available at:  
<http://www.epa.gov/oswer/riskassessment/ragsc/index.htm>

USEPA, 1995. Land Use in the CERCLA Remedy Selection Process. EPA 540-F-95-052. Available at: <http://www.epa.gov/superfund/community/relocation/landuse.htm>

USEPA, 1996. Revised Policy on Performance of Risk Assessments During Remedial Investigation/Feasibility Studies (RI/FS) Conducted by Potentially Responsible Parties, OSWER Directive No. 9340.1-02. Available at:  
<http://www.epa.gov/oswer/riskassessment/pdf/rifsmemo.pdf>

USEPA, 1999. Risk Assessment Guidance for Superfund (RAGS). Volume I, Community Involvement in Superfund Risk Assessments. OSWER 9285.7-01, EPA540-R-98-042, PB-99-96303, March 1999. Available at:  
<http://www.epa.gov/oswer/riskassessment/ragsa/ci-ra.htm>

USEPA, 2001. Risk Assessment Guidance for Superfund (RAGS); Volume I, Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments) OSWER 9285.7-47. Available at:

<http://www.epa.gov/oswer/riskassessment/ragsd/index.htm>

USEPA, 2002. Role of Background in the CERCLA Cleanup Program. OSWER 9285.6-07P. Available at: <http://www.epa.gov/oswer/riskassessment/pdf/role.pdf>

USEPA, 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER Directive 9285.6-10. Available at: <http://www.epa.gov/oswer/riskassessment/pdf/ucl.pdf>

USEPA, 2002. Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites. EPA 540-R-01-003. OSWER 9285.7-41. Available at: <http://www.epa.gov/oswer/riskassessment/pdf/background.pdf>

### Exposure Factors

USEPA, 1991, RAGS Volume I: Human Health Evaluation Manual Supplemental Guidance. Standard Default Exposure Factors. OSWER Directive 9285.6-03. March 25, 1991. Available at: [http://www.epa.gov/oswer/riskassessment/pdf/oswer\\_directive\\_9285\\_6-03.pdf](http://www.epa.gov/oswer/riskassessment/pdf/oswer_directive_9285_6-03.pdf)

USEPA, 1992. Supplemental Guidance to RAGS: Calculating the Concentration Term. OSWER 9285.7-081. May 1992. Available at: <http://www.deq.state.or.us/lq/pubs/forms/tanks/UCLsEPASupGuidance.pdf>

USEPA, 1997. Exposure Factors Handbook. National Center for Environmental Assessment, Washington, D.C. Available at: <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=12464&CFID=1806980&CFTOKEN=19859998>

### Dermal Exposure

USEPA, 2004. Risk Assessment Guidance for Superfund (RAGS); Volume I, Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment) OSWER 9285.7-02EP. Available at: <http://www.epa.gov/oswer/riskassessment/ragse/index.htm>

### Toxicity and Chemical Specific Guidance

USEPA, current version. Integrated Risk Information System (IRIS); On-line Service. Available at: <http://www.epa.gov/iris/>

USEPA, 1993. Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA/600/R-93/C89. July 1993. Available at: [http://www.epa.gov/oswer/riskassessment/pdf/1993\\_epa\\_600\\_r-93\\_c89.pdf](http://www.epa.gov/oswer/riskassessment/pdf/1993_epa_600_r-93_c89.pdf)

USEPA, 1996. PCBs: Cancer dose-response assessment and application to environmental mixtures. EPA/600/P-96/001A. Available at:  
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USEPA, 2003. Human Health Toxicity Values in Superfund Risk Assessments. OSWER Directive 9285.7-53. Available at: <http://www.epa.gov/oswer/riskassessment/pdf/hhmemo.pdf>

#### Risk Characterization Guidance

USEPA 1995. Memorandum from Carole Browner on Risk Characterization, U.S. EPA, February 22, 1995.

USEPA, 1995. EPA Risk Characterization Program. Memo from Administrator Carol Browner dated March 21, 1995. Available at:  
<http://permanent.access.gpo.gov/lps43484/www.epa.gov/sab/pdf/rac95006.pdf>

#### Risk Assessment Guidelines and Policies

USEPA, 1986. Risk Assessment Guidelines for Mutagenicity Risk Assessment. 51 Federal Register 34006, September 24, 1986. Available at:  
<http://cfpub.epa.gov/ncea/raf/recordisplay.cfm?deid=23160>

USEPA, 1986. Risk Assessment Guidelines for Chemical Mixtures 51 Federal Register 34014, September 24, 1986. Available at: <http://cfpub.epa.gov/ncea/raf/recordisplay.cfm?deid=20533>

USEPA, 1992. Risk Assessment Guidelines for Exposure Assessment. Federal Register. Available at: <http://cfpub.epa.gov/ncea/raf/recordisplay.cfm?deid=15263>

USEPA, 1995. Neurotoxicity Cancer Guidelines. Federal Register. 60 FR 52-32-52056, October 4, 1995. Available at: <http://cfpub.epa.gov/ncea/raf/recordisplay.cfm?deid=12479>

USEPA, 1996. Guidelines for Reproductive Toxicity Risk Assessment. EPA/630/R-96/009, September 1996. Available at: <http://cfpub.epa.gov/ncea/raf/recordisplay.cfm?deid=2838>

USEPA, 2005. Guidelines for Carcinogen Risk Assessment. EPA/600/P-03/001F. Available at: <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=116283>

USEPA, 2005. Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens. EPA/630/R-03/003F. Available at:  
<http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=160003>

### Data Useability and Quality

USEPA, 1992. Final Guidance on Data Useability in Risk Assessment (Part A), OSWER Directive 9285.7-09A., June 1992. Available at:  
<http://www.epa.gov/oswer/riskassessment/datause/parta.htm>

USEPA, 1992. Guidance for Data Useability in Risk Assessment (Part B), OSWER Directive 9285.7-09B, August 1992. Available at:  
<http://www.epa.gov/oswer/riskassessment/datause/partb.htm>

USEPA, 1993. Data Quality Objectives Process for Superfund, Interim Final Guidance. OSWER Publication 93559-01, EPA 540-R-93-071. Available at:

### Air

USEPA, 1989. Air/Superfund National Technical Guidance Study Services, Volumes I-IV, EPA 450/1-89/001, 002, 003, 004, July 1989.

### Soil

USEPA, 1996. Soil Screening Guidance, Fact Sheet. EPA 540/F-95/041.  
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